

# WHITE PAPER

# **CONTAMINANT SOURCES**

## At the

# PREMIER EDIBLE OIL SITE (ESCI # 2013)

# **Located Within The**

# PORTLAND HARBOR SUPERFUND SITE

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March 6, 2006

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### **Appendix A** - CD Discs containing:

Transcripts of referenced Depositions and Affidavits in

# Bell Oil Terminal Co. vs. Schnitzer Investment Corp. and PALMCO Inc.:

Edward D. Moschetti

Newton P. Lesh

Donald J. Zarosinski

Kenneth M Novak

and

Depositions in Time Oil vs. Underwriter At Lloyd's London

Herby D. Wilton

Neil J. Gallagher, Volume 1

Neil J. Gallagher, Volume 2

Neil E. Wallis

Jonathan D. Streidl, Volume 1

Jonathan D. Streidl, Volume 2

Roderick C. Doughty

**AND** 

# American Petroleum Institute's (API) Manuals on Cleaning Petroleum Storage Tanks

First Edition, August 1931

Manuel Nos. 1-A and 1-B, March 1942

1950

Sections A & B, 1955

API RP 2015, First Edition, September 1968

Pub. 2015 A, First Edition, May 1975

API 2015, Second Edition, November 1976

API 2015B, First Edition, August 1981

API 2015A, Supplement to API Publication 2015, Second Edition, June 1982

ANSI/API Standard 2015-2001, Sixth Edition, August 2001

ANSI/API Recommended Practice 2016, First Edition, August 2001

### **EXECUTIVE SUMMARY**

The inclusion of the Premier Edible Oils (PEO) Site, DEQ ESCI # 2013, 10400 N Burgard Way, Portland, Oregon within the larger Portland Harbor Superfund Site requires a factual determination as to the contaminant sources for the residual petroleum contamination at the PEO Site. This requirement has existed since the Oregon Department of Environmental Quality (DEQ) first identified the PEO Site as a contaminated site; and, Schnitzer Investment Corp. (SIC), the owner of the PEO Site since 1972, has worked with the DEQ since the PEO Site's listing to determine the underlining facts as to the contaminant sources. This work has included additional investigatory work at the PEO Site and evaluation of available information regarding the contaminant sources.

Concurrent with SIC's evaluations, Time Oil Company (Time Oil), the immediately adjacent property owner, has submitted a number of documents to DEQ that include conclusions regarding the contaminant sources at the PEO site. Many of the conclusions presented in Time Oil's documents regarding the PEO Site consist of unsubstantiated allegations and conjecture. With the September 2004 issuance of the Lower Willamette Group's (LWG's) draft *Conceptual Site Model (CSM) for the PEO Site*, those erroneous and misleading characterizations of the PEO Site have now found their way into the Portland Harbor Superfund framework as well. As result, a response to these mischaracterizations is also required within the context of the ongoing Portland Harbor investigatory work.

Time Oil is the owner, operator and/or successor-in-interest for three bulk fuel storage facilities located within the PEO Site or immediately adjacent to and/or upgradient from the PEO Site. Available information strongly points to at least two of those tank farms as primary sources of the petroleum product contamination found in the soil and groundwater at the PEO Site. Those responsible for the contamination should be held responsible to complete the ongoing investigation and cleanup work.

For the past several years, Time Oil has asserted repeatedly, in numerous submittals to EPA and/or DEQ, that the sources for the residual petroleum product contamination at the PEO Site are the prior activities of SIC or its tenants. Those asserted sources include:

- A. Alleged operations by Schnitzer tenants along the 80 foot wide strip of land adjacent to the west property boundary of the Bell Oil Terminal for a twenty-five year period;
- B. The 1973 Breach of the Time Oil Pipeline on the PEO Site property; and
- C. An alleged release of fuel from the 10,000 gallon diesel aboveground storage tank (AST) on the PEO Site.

Time Oil has generally relied on unsubstantiated allegations in making these accusations; and, the EPA recognized the lack of foundation for these accusations in its January 13,

2005 general comments to the LWG's September 17, 2004 Conceptual Site Model (CSM) Update. EPA stated, "Another limitation of the CSM Update is the inclusion of subjective and sometimes biased language in the site summaries. The site summaries should include an objective summary of factual information regarding the nature and extent of contamination at upland facilities and the potential for hazardous substance releases at upland facilities to impact the river at levels that represent risk to human health or the environment."

In specific reference to the PEO Site, EPA found that "The CSM states that Schnitzer operators used a portion of the Bell Terminal until 2000. However, it is unclear whether this is the case." EPA further found that CSM statements regarding the 1973 rupture of the pipeline as having caused releases on the Bell Oil Terminal Property and statements that Schnitzer tenant's operations on the 80-foot strip of land adjacent to the Bell Oil Terminal's west containment wall as being the contaminant sources for the TPH concentrations detected in that area "cannot be verified by information contained within the project files." SIC concurs with these conclusions and notes that it also was unable to uncover factual evidence in support of Time Oil's allegations

Time Oil has represented to DEQ that it has disclosed all past releases at the Northwest and Bell Oil Terminal tank farms. Nevertheless, to the best of our knowledge and based upon the available DEQ public record, Time Oil has been non-responsive to DEQ's request that Time Oil provide DEQ information related to its historic operation and maintenance practices at Time Oil's bulk fuel storage facilities. DEQ has also requested information on Time Oil's historic management of "tank bottoms" (sludge)<sup>4</sup> from its storage tanks. To the best of our knowledge, Time Oil has yet to respond to these latter agency requests.<sup>5</sup>

At SIC's request, Gradient Corporation has reviewed the available factual information for the PEO Site and the adjacent Bell Oil and Northwest Terminal sites. In addition, the depositional testimony from previous litigation between Time Oil and its insurance carrier, Lloyds of London, has been reviewed for relevant information. We have also reviewed historic American Petroleum Institute (API) Manuals for Cleaning Petroleum Storage tanks, which discusses the industry's recommended practices for managing "tank bottoms" or sludge from petroleum storage tanks to ascertain the standard of care within the petroleum industry.

Gradient also reviewed the available data for the PEO and Bell Terminal sites, focusing primarily on data for gasoline- and diesel-range petroleum hydrocarbons in the soil and

<sup>1</sup> EPA January 13, 2005 Letter Jim McKenna and Robert Wyatt, Co-Chairman of the LWG, Pgs 1 & 2. (Hereinafter referred to as "EPA Letter").

<sup>&</sup>lt;sup>2</sup> EPA Letter, Pg 27.

<sup>3</sup> Ibid.

<sup>4 &</sup>quot;Sludge (tank bottoms)" are defined by the American Petroleum Institute (API) as "Undesirable materials that accumulate in the bottom of storage tanks and are removed for disposal, usually consisting of heavy petroleum products or a mixture of hydrocarbons, residue and water, that may be flammable, hazardous and/or toxic." API Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks, ANSI/API Recommended Practice 2016, First Edition August 2001, Section 3.2.55, Page 7.

<sup>&</sup>lt;sup>5</sup> January 14, 2005, E-mail Communication from DEQ to SIC.

groundwater. Based upon that review, Gradient determined that two principle sources appear to be the primary contributors to the contamination observed at the PEO Site. First, the available data indicate a widespread area with elevated petroleum hydrocarbon concentrations in groundwater and capillary fringe zone soils that originates, at a minimum, in the middle of Bell Oil Terminal facility and extends west onto the downgradient PEO Site. Both gasoline and diesel contamination have been observed in this area. Available information further indicates that this contamination originates from past releases at the Bell Oil Terminal. Second, other primary sources, as indicated by the available data, are the historic spills and releases at the former Northwest Oil Company tank farm, which was located at the southwest corner of the PEO Site between 1941 and 1943. It is our understanding that Northwest Oil Company is the predecessor company to Time Oil.

Based upon the observations and testimony of Time Oil employees, Time Oil's operational and maintenance practices at its tank farms were generally consistent with industry standards, which for decades included disposing tank sludges on the surface of the ground or burying it within the tank farm's soils; and, those employees participated personally in dumping of tank sludges onto the surface of the tank farms' sandy soils or into holes dug to hold leaded gasoline tank sludges. The awareness of worker safety or environmental concerns evolved over the 60+ year operational period of these tank farms, from one of little or no awareness of such concerns to the highly regulated era of the 21<sup>st</sup> Century. Further, it was the recommended industry practice, from at least 1931 until 1982, to dispose of tank sludge onto the ground or to bury leaded gasoline sludges in holes at the tank farms.

It is conservatively estimated that Time Oil's adherence to those petroleum industry practices resulted in releases at the Bell Oil Terminal alone of hundreds of thousands of gallons of tank sludges either through direct release onto the sandy soil or through burial in the on-site sandy soils. When the Bell Oil Terminal sludges are combined with the Northwest Terminal sludges a conservative estimate of the volume of disposed sludges may exceed millions of gallons of sludge. Information on several other voluminous releases from individual storage tanks on these tank farms appear to have gone unreported by Time Oil in the documentation submitted to date to DEQ's Site Cleanup Program. This information is also available through this testimonial evidence.

Based upon the testimonial evidence presented in this White Paper and an objective review of the sampling data collected to date at the PEO Site and the adjacent Bell Oil Terminal, the agencies should concur that the most plausible and viable explanation as to the actual contaminant sources for the residual petroleum contamination on the PEO Site are:

- the historic operation and maintenance practices at the Time Oil facilities (including the management of tank bottoms),
- the known historic releases of hazardous substances on the current and former Time Oil terminal properties, and

• the lengthy and conscious disregard of required environmental compliance measures, other than tanks sludge disposal, by Time Oil management, from at least 1971 to 1983.

Given the facts presented herein, there should be little, if any, doubt that Time Oil's facilities are the sources of the PEO Site contamination; therefore, DEQ and EPA should re-consider any prior acceptance of the completeness of Time Oil's investigatory work at the oil terminals in light of the facts provided by Time Oil employee' testimony. Also, the Lower Willamette Group (LWG) should utilize the information set forth below to reconsider its conceptual site model conclusions for the PEO Site. Time Oil should also be required to take over the PEO Site investigation and any needed cleanup, as well as being named a responsible party at the PEO Site.

In addition, Time Oil should be required to complete a systematic and technically sound investigation of soil and groundwater within the Bell Oil Terminal and Northwest Terminal facilities. In particular, such investigation should include comprehensive sampling of the area between the Bell Oil Terminal ASTs and the western property line. Each sample location should include discrete (not composite) samples of the shallow soil, intermediary soils, capillary fringe zone soils, and groundwater; as well as, sample analysis for the full suite of petroleum product related analytes (e.g., petroleum products, volatile organic compounds [VOCs], polycyclic aromatic hydrocarbons [PAHs] and pentachlorophenol). The purpose of the investigation should be to determine the extent of the contamination caused by Time Oil's past petroleum tank sludge disposal practices and past on-site releases of hazardous substances by Time Oil and/or its tenants. Although some portions of this work have been conducted at the Bell Oil Terminal, the existing data are incomplete and suffer from a number of technical deficiencies (as described in the September 10, 2004 and March 1, 2006 Gradient Memoranda, which bare enclosed with this White Paper and included herein by reference.)

Further, Time Oil should be required to review all of its corporate records, including past litigation files and depositions, for any and all records of past spills or releases at the oil terminals. Time Oil should be required to certify under penalty of law that it has completely and thoroughly reviewed such records and should be required to produce for the agencies complete copies of all relevant records.

### I. INTRODUCTION

The inclusion of the Premier Edible Oils (PEO) Site, DEQ ESCI # 2013, 10400 N Burgard Way, Portland, Oregon within the larger Portland Harbor Superfund Site requires a factual determination as to the contaminant sources for the residual petroleum contamination at the PEO Site. This requirement has existed since the Oregon Department of Environmental Quality (DEQ) first identified the PEO Site as a contaminated site; and, Schnitzer Investment Corp. (SIC), the owner of the PEO Site since 1972, has worked with the DEQ since the PEO Site's listing to determine the underlining facts as to the contaminant sources. This work has included additional investigatory work at the PEO Site and evaluation of available information regarding the contaminant sources.

Concurrent with SIC's evaluations, Time Oil Company (Time Oil), the immediately adjacent property owner, has submitted a number of documents to DEQ that include conclusions regarding the contaminant sources at the PEO site. Many of the conclusions presented in Time Oil's documents regarding the PEO Site consist of unsubstantiated allegations and conjecture. With the September 2004 issuance of the Lower Willamette Group's (LWG's) draft *Conceptual Site Model (CSM) for the PEO Site*, those erroneous and misleading characterizations of the PEO Site have now found their way into the Portland Harbor Superfund framework as well. As result, a response to these mischaracterizations is also required within the context of the ongoing Portland Harbor investigatory work.

Time Oil is the owner, operator and/or successor in interest for three bulk fuel storage facilities located within the PEO Site or immediately adjacent to and/or upgradient from the PEO Site. Available information strongly points to at least two of those tank farms as the primary sources of the petroleum product contamination found in the soil and groundwater at the PEO Site. Those responsible for the contamination should be held responsible to complete the ongoing investigation and cleanup work.

Since the initial development of the property surrounding and immediately adjacent to the PEO Site in approximately 1939, <sup>6</sup> Time Oil or Northwest Oil Company (Time Oil's predecessor) [collectively referred to hereinafter as "Time Oil"] have continuously been present at either the PEO Site or one or more of the immediately adjacent properties as an owner and/or operator of petroleum bulk fuel storage facilities. Time Oil does or has continuously operated one or more of these three separate multi-million gallon oil terminal storage facilities for the past 60+ years, closing the Northwest Terminal in 2001.<sup>7</sup>

During those six decades, industrial and regulatory standards concerning both worker's health and safety and protection of the environment have evolved. Those standards have

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<sup>6</sup> See Photo 1

<sup>&</sup>lt;sup>7</sup> Landau Associates, April 20, 2004, *Volume I: Phase III Remedial Investigation Report, Time Oil Northwest Terminal, Portland, Oregon, Pg 2-1*, (hereinafter referred to as "Landau, Draft Phase III RI").

progressed from the figurative "dark ages" to the highly-regulated environment of the 21<sup>st</sup> Century.

The southwest portion of the PEO Site was owned by Time Oil from February 11, 1941 through December 11, 19438 and served as a Time Oil bulk fuel tank farm during that time period. The PEO site was also used as a significant logistical support facility for a portion of the nation's Liberty Ship building efforts in World War II. In its efforts to characterize the impacts of its bulk fuel terminal operations, Time Oil has minimized the documented adverse impacts of its wartime tank farm operations at the PEO Site, as well as the adverse impacts of its adjacent properties. Time Oil also has striven to evade acknowledging those properties' potential to serve as contaminant sources for the residual petroleum product contamination in the soil and groundwater at the PEO Site.

Based upon our review of the relevant DEQ cleanup file documents, since the commencement of the Portland Harbor Superfund investigation work and in connection with the in-water and upland investigatory work, Time Oil has acknowledged the following releases at its three terminals along the Willamette River:

- 1. A 1975 diesel release of an unknown volume from Tank 29508 when a vertical weld split;
- 2. A 1994 release of 1300 gallons of unleaded gasoline;
- 3. A 1999 suspected release of 2,479 gallon ethanol; and
- 4. The potential for leaks along the pipelines conveying petroleum products.9

Also, Time Oil and has reportedly cleaned up or is in the process of cleaning up the following releases at the Northwest Terminal:

- 5. The Former Pentachlorophenol (PCP) mixing area where specialty wood treating products containing PCP in various formulations (typically with petroleum-based carriers) were blended and stored for offsite shipment. The soil removal action's completion report was submitted to DEQ on November 10, 2003;<sup>10</sup>
- 6. The Former Crosby & Overton tank area located directly south of the former PCP mixing area where waste oils were previously stored in two ASTs. The soil removal action completion report was submitted to DEQ on November 10, 2003, 11 and
- 7. The former soil stock-pile area where approximately 3,600 yds<sup>3</sup> of soil that was excavated from the former PCP mixing area in 1989 or was transferred from the East Property during the interim removal actions in 1996-1997 was

 $<sup>^8</sup>$  Bridgewater September 13, 2000 Memorandum *Additional Evaluation of Northwest Terminal Tanks – Premier Edible Oils*, Chain of Title Report, entries 6 & 7.

<sup>9</sup> Landau, Draft Phase III, Pg 8-2 and Landau Associates, July 19, 2005, *Volume I Report; Final Phase III Remedial Investigation Report* (hereinafter referred to as "Landau, Final Phase III RI"), pg 2-4.

<sup>10</sup> Landau, Final Phase III RI, Page iv.

<sup>11</sup> Landau, Final Phase III Rpt., Page iv-v.

temporarily located. The soil removal actions completion report was submitted to DEQ on November 10, 2003. 12

Time Oil has also stated that other than some incidental spills, "No past releases of petroleum are known resulting from petroleum storage and handling practices in the Bell Terminal."

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Notwithstanding Time Oil's assurances that it has disclosed all past releases at these tank farms, to the best of our knowledge and based upon available public records Time Oil has been non-responsive to DEQ's request that Time Oil provide DEQ with information related to the historic operation and maintenance practices at Time Oil's bulk fuel storage facilities. <sup>14</sup> DEQ has also requested information on Time Oil's historic management of "tank bottoms" (sludges) <sup>15</sup> from Time Oil's storage tanks. To the best of our knowledge, Time Oil has yet to respond to these agency requests.

Time Oil has alleged that the following releases occurred during the 1973-2000 time periods on the PEO Site property and that these alleged releases are the sources of the gasoline and diesel soil and groundwater contamination at the PEO Site:

- A. Alleged operations by Schnitzer tenants along the 80 foot wide strip of land adjacent to the west property boundary of the Bell Oil Terminal for a twenty-five year period<sup>16</sup>;
- B. 1973 Breach of the Time Oil Pipeline<sup>17</sup>; and
- C. An alleged release of fuel from the 10,000 gallon diesel aboveground storage tank (AST) on the PEO Site. 18

Figure WP-1<sup>19</sup> – **Overview of Key Site Features** is provided as a reference figure for the discussion that follows and depicts the locations of relevant PEO Site features.

Time Oil has generally relied on unsubstantiated allegations in asserting these PEO Site contaminant sources. The EPA recognized in its January 13, 2005 general comments on the LWG's September 17, 2004, Conceptual Site Model Update that Time Oil lacked any foundation for these allegations. EPA stated, "Another limitation of the CSM Update is the inclusion of subjective and sometimes biased language in the site summaries. The site summaries should include an objective summary of factual information regarding the nature and extent of contamination at upland facilities and the potential for hazardous

<sup>12</sup> Landau, Final Phase III Rpt., Page v.

<sup>13</sup> Landau, Draft Phase III RI, Pg 8-3, see also Landau, Final Phase II Rpt., Page xii.

January 14, 2005, E-mail Communication from DEQ to SIC.

<sup>15</sup> See Footnote 5

 $<sup>16 \</sup>quad Landau, Draft\ Phase\ III\ RI,\ Pg\ 8-3\ and\ PEO\ Site\ Conceptual\ Site\ Model\ (CSM)-Appendix\ A-15,\ Pg\ 8.$ 

<sup>17</sup> Ibid

 $<sup>^{18}</sup>$   $\,$  Landau, Draft Phase III, Pg 8-3 and CSM- Appendix A-15, Pgs 4 & 5.

<sup>19</sup> For purposes of this White Paper, Figures have been drawn from several consultants' previously submitted reports. This White Paper will reference its Figures by the notation "WP" followed by the consecutive number (e.g., White Paper Figure 1 is labeled as follows: "Figure: WP-1"). The White Paper reference number is inserted above or below the title block of the original figure.

substance releases at upland facilities to impact the river at levels that represent risk to human health or the environment."<sup>20</sup>

Speaking specifically about the PEO Site, EPA found that "The CSM states that Schnitzer operators used a portion of the Bell Terminal, until 2000. However, it is unclear whether this is the case." EPA further found that CSM statements regarding the 1973 rupture of the pipeline as having caused releases on the Bell Terminal Property and statements that Schnitzer tenant's operations on the 80-foot strip of land adjacent to the Bell Oil Terminal's west containment wall as being the contaminant source for the TPH concentrations detected in that area "cannot be verified by information contained within the project files." 22

The purpose of this White Paper is to provide the DEQ and EPA with the factual, documented information available to SIC to assist in developing a comprehensive understanding of the contaminant sources, migration pathways and contaminant fate and transport properties at the PEO Site. It also clarifies and/or refutes Time Oil's allegations, as well as sheds further light and knowledge upon the past practices at the Time Oil facilities, which based upon the information in Time Oil employees' depositions, have resulted in voluminous petroleum product releases to the environment from those Time Oil facilities.

Based upon the observations and testimony of Time Oil employees, discussed below, Time Oil's historic operational and maintenance practices at its tank farms were generally consistent with the standard of practice within the petroleum industry. Those petroleum industry worker safety or environmental practices have evolved over this 60+ year period from one of little or no awareness of potential hazards to the highly regulated era of the 21<sup>st</sup> Century. Time Oil's adherence to those petroleum industry practices would have resulted in tank sludges being disposed on-site, which would have resulted in the release and, in some instances, burial of voluminous amounts of tank sludges within the confines of the Time Oil tank farms.

Based upon the testimonial evidence presented in this White Paper and an objective review of the sampling data collected to date at the PEO Site and the adjacent Bell Oil Terminal, the agencies should concur that the most plausible and viable explanation as to the actual contaminant sources for the residual petroleum contamination on the PEO Site are:

- the historic operation and maintenance practices at the Time Oil facilities (including the management of tank bottoms),
- the known historic releases of hazardous substances on the current and former Time Oil terminal properties, and

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<sup>20</sup> EPA January 13, 2005 Letter to Jim McKenna and Robert Wyatt, Co-Chairman of the LWG, Pgs 1 & 2. (Hereinafter referred to as "EPA Letter").

<sup>21</sup> EPA Letter, Pg 27.

<sup>22</sup> Ibid.

• the lengthy and conscious disregard of required environmental compliance measures by Time Oil management, from at least 1971 to 1983.

SIC will present this information using a combination of:

- 1) Historic aerial photos of the PEO Site and surrounding area dating from 1939 until 2004;
- 2) American Petroleum Institute (API) Manuals related to the Cleaning of Petroleum Tanks, dating from 1931 through 2001, which document the petroleum industry's slow awakening to environmental contaminant concerns caused by its historic management of tank bottoms; and
- 3) Depositional testimony of Time Oil officials and employees involved with the operation and maintenance of the Time Oil terminals, as well as known spills and releases at those terminal facilities.

This depositional testimony also discusses, at length, the numerous, continuous and significant releases from the PCP formulation operations at the Northwest Terminal. Those operations were the subject of Time Oil's own independent cleanup actions and will not be discussed herein except to the extent they appear to be indicative of Time Oil's corporate practices and attitudes towards overall facility operations and/or to demonstrate an apparent conscious disregard for environmental protection and compliance. However, if the DEQ or EPA are concerned about pentachlorophenol contamination at the Northwest terminal and desire to gain a better understanding of the potential magnitude of that contamination, a carefully reading of the 1998 depositions included at Appendix A will be most enlightening.

The remainder of this White Paper will address the following five topics:

- I. Time Oil's allegations regarding the PEO Site;
- II. More Plausible PEO Site Contaminant Sources;
- III. Contamination Associated with the Former Northwest Oil Company Tank Farm;
- IV. Contamination Associated with the Former Northwest Oil Company Tank Farm:
- V. Management of Tank Sludges at Time Oil Tank Farm Terminals and the API's Recommended Practices for Cleaning Petroleum Storage Tanks;
- VI. Known Spills and Releases at the Time Oil facilities; and
- VII. Time Oil's Apparent Disregard for Environmental Compliance at the Oil Terminals.

### II. TIME OIL'S ALLEGATIONS REGARDING THE PEO SITE

Time Oil alleged that the following three events or categories of activities are the contaminant sources for the residual petroleum product contamination in the soil and groundwater at the PEO Site:

- Alleged operations by Schnitzer tenants along the 80 foot wide strip of land on the west property boundary of the Bell Oil Terminal for a twentyfive year period;
- The 1973 Breach of the Time Oil Pipeline on the PEO Site; and
- An alleged release of fuel from the 10,000-gallon diesel aboveground storage tank (AST) at the PEO Site.

The factual basis, if any, for these allegations is discussed below.

#### **Schnitzer Tenant Operations Adjacent to the Bell Terminal**

#### **Time Oil Allegations:**

Time Oil alleged that unspecified activities by SIC tenants between the 1960s<sup>23</sup> and 2000 along the western edge of Time Oil's property (between the west Bell Oil Terminal containment wall and the PEO Site property line) caused the petroleum product soil and groundwater contamination in that area. However, other than asserting these bare allegations, Time Oil has produced no supporting evidence as to what those alleged activities were; or how, what, when and where the release(s) of the petroleum products occurred that gave rise to the contaminant impacts in the soil and groundwater on the Time Oil and PEO Site properties.

In an apparent belief that repeating something often enough makes it a fact, Time Oil has stated:

- Sources that have affected soil and groundwater quality include "at the Bell Terminal, a strip of land approximately 80 feet wide along the entire western boundary was used by operators of the adjacent Schnitzer property for approximately 25 years, ending in 2000."<sup>24</sup>
- "Other elevated concentrations of TPH were observed at the capillary fringe depth along the western property boundary of the Bell Terminal and appear to be related to activities in this area when used by operators of the adjacent Schnitzer property."<sup>25</sup>

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<sup>&</sup>lt;sup>23</sup> Schnitzer did not purchase the PEO Site until 1972, Bridgewater Group Inc., September 1998 report entitled, *Summary Report: Focused Site Characterization for 10400 N. Burgard Way*, Pg 1-1.

<sup>&</sup>lt;sup>24</sup> Landau, Draft Phase III RI, Pg iii, 8-1; see also, Landau, Final Phase III RI Report, Pg vii.

<sup>&</sup>lt;sup>25</sup> Landau, Draft Phase III RI, Pg vi

 "As documented in historical aerial photographs, an approximate 80-foot wide strip of land along the entire western property boundary was used by operators of the adjacent Schnitzer property between approximately the 1960s and 2000."26

Moreover, other than *incidental spills*, Time Oil disavows knowledge of any other spills or releases at the Bell Oil Terminal that could have contributed to the contamination in this area stating that, "No past releases of petroleum are known resulting from petroleum storage and handling practices in the Bell Terminal."<sup>27</sup>

Apparently drawing upon Time Oil's statements, the September 2004, *PEO Site Conceptual Site Model (CSM): Premier Edible Oils CSM Site Summary – Appendix A-15*, prepared by the LWG concludes:

"The RI investigation results for the Time Oil Bell Terminal ... indicate that diesel-range and gasoline-range concentrations in smear zone soils are greater than 10,000 mg/kg and greater than 1,000 mg/kg, respectively, along the western property boundary within an area of the Bell Terminal property that was used by operators of the Schnitzer facility until approximately 2000."<sup>28</sup>

In the *Final Phase III Report*, Time Oil somewhat tempers its position by stating, "In the Bell Terminal Tank Farm area, although no releases have been documented, its appears releases may have occurred in the central portion of the Bell Terminal Tank Farm near the east-west trending conveyance pipeline due to incidental spills, along the western property boundary outside the walls of the tank farm in an area that appears to have been used by operators of the adjacent property for storage, and on the eastern portion of the former PEO property (including the former locations of the diesel ASTs)."<sup>29</sup> It should be noted that only a single 10,000-gallon diesel AST was present on the PEO site, which provided emergency backup fuel for the boiler.

#### **SIC Response:**

To the best of SIC's knowledge and belief, SIC's tenants <u>did not</u> operate on Time Oil's property and to the extent that they may have "used" the property, such uses consisted of incidental use by vehicles (e.g., driving through or parking on the property). Further, there is no evidence that SIC's tenants stored gasoline at the PEO Site, except what may have been in the tanks of their vehicles.

The Photos Appendix below contains 24 chronological aerial photographs depicting the development of the PEO Site from the time it was mostly raw undeveloped land (with only the Northwest Oil Company's tank farm being present just south of the current Ship

<sup>26</sup> Landau, Draft Phase III RI, Pg 8-3, see also Landau, Final Phase III RI, Pgs iii, 2-2, which adds "storage of equipment and other unknown activities."

<sup>&</sup>lt;sup>27</sup> Landau, Draft Phase III RI, Pg 8-3.

<sup>&</sup>lt;sup>28</sup> PEO Site CSM Summary – Appendix A-15, Pg 8

<sup>&</sup>lt;sup>29</sup> Landau, Final Phase III RI, Pg xii.

Channel, *see* Photo 1) to its current state, see Photo 23. These photos span the years from 1939-2004 and will be referenced throughout this White Paper.

- Photos 1 through 7 span the pre- and post-World War II era;
- Photos 8 through 13 span the 1961 through 1972 time period when there was only
  a warehouse building on the PEO property and no significant external operations.
   SIC purchased the PEO property in 1972; and
- Photos 14 through 23 span the 1973 through 2004 time period, which
  encompassed the construction of the PEO facility, its operational lifetime, closure
  and the subsequent removal of the PEO ASTs from the property.

Several of the Photos and the discussion below refer to Time Oil's ASTs by specific numbers; *see* Figure WP-2 – **Previous Investigation Areas and Phase III Study Area,** <sup>30</sup> which contains Time Oil's identification numbers for its tanks.

Notwithstanding Time Oil's assertions to the contrary, the mere use of the 80 foot strip of land <u>does not</u> equate to the release of petroleum products on that portion of the property. Other than utilizing the northern and eastern perimeters of the PEO property as a roadway, the enclosed aerial photos <u>do not</u> reveal SIC tenant operations on the 80-foot wide strip of land along the west property line of the Bell Terminal.

Time Oil stated that its allegations of tenant operations on the 80-foot strip were supported by aerial photos, *see* Footnote 26 above. However, with regards to the alleged activities, Time Oil neither provided copies of supporting aerial photos, specifically listed what those activities/releases were, nor cited to any specific photo in support of their accusations.

In reviewing the aerial photos previously submitted by Landau in its *Phase III Work Plan*, we find but one photo that potentially addresses Time Oil's allegation. It is a 1995 aerial, reproduced herein as Photo 24.<sup>31</sup> Photo 24 depicts certain personal vehicles parked around the small office building located immediately west of the PEO Site/Bell Oil Terminal property line. However, there is no evidence of oil leakage or apparent soil staining in that photo. Any minor oil drips or leakage from a parked vehicle would be more than dwarfed by even the smallest of the *incidental spills* that Time Oil acknowledges probably occurred during the half-century of operation of its multi-million gallon fuel storage facility on the adjacent and upgradient Bell Oil Terminal property.

Therefore, in light of Time Oil's failure to present any substantial evidence that actually supports their allegations, those allegations regarding the 80-foot strip of land must be dismissed as baseless and without merit.

<sup>&</sup>lt;sup>30</sup> Landau, Draft Phase III RI, Figure 2-2 depicts the locations of these tanks in both the Northwest Terminal and the Bell Terminal

<sup>31</sup> Landau, Phase III Remedial Investigation Work Plan, Time Oil Northwest Terminal Portland Oregon, dated June 18, 2001 Figure 10

#### 1973 Breach of the Time Oil Pipeline

#### **Time Oil Allegations:**

Time Oil has stated, "The highest concentrations of contaminants in soil occur west of the tank farm near where the east-west trending pipeline formerly existed but was demolished by SIC in the mid-1970s while still in use and containing product." "The western portion of the pipeline was demolished by Schnitzer during construction of the PEO facility in the mid-70s while still in use and containing product. This demolition resulted in a release of petroleum product to the soil in the area." 33

We presume, that as members of the LWG having a vested interest in the PEO Site, Time Oil or/and its consultants played an influential role in the drafting of the LWG's CSM Summary for the PEO Site. The CSM states in part:

"Aerial photos from 1956 to 1961 show a surface pipeline extending from a T- shaped river dock to the bulk petroleum facility adjacent to the eastern boundary of the site as well as a railroad track. This bulk facility, Time Oil's Bell Terminal, was in operation until 2002. The existence of a pipeline corresponds with an easement obtained by Time Oil for the PEO property in the 1950s. However, by the 1960s the surface pipeline is no longer present in the aerial photos; Time Oil had constructed an underground pipeline by that time. This pipeline was broken in 1973 while still in use and containing product during site construction activities by SIC, resulting in a product release (Landau 2004)."<sup>34</sup>

"A pipeline from the dock at PEO ran to the adjacent Time Oil Bell Terminal until 1973, when it was torn out by SIC during construction, resulting in a documented release. ... Inadvertent spills during transfer activities or leakage of diesel, motor oils, or other contaminants may have been sources of sediment contamination. PEO received edible oils for refining by ship." 35

"Rupture of pipeline appears to have caused the subsurface spills at Time Oil Bell Terminal." [Referencing Landau and deposition of Edward Moschetti, February 25, 1976]. 36

#### **SIC Response:**

SIC agrees with the USEPA's finding that the CSM and Time Oil's assertions regarding the alleged petroleum product spill or release during 1973 removal of the abandoned Bell Terminal pipeline "cannot be verified by information contained within project files." Moreover, a review of available facts and data otherwise rebuts these allegations. Further, SIC was not involved in the removal of Time Oil's pipeline; as discussed more fully below, that work was completed by PEO's contractors.

<sup>32</sup> Landau, Pgs vi, 7-6, 8-1, 8-3.

<sup>&</sup>lt;sup>33</sup> Landau, Pg 8-3.

<sup>&</sup>lt;sup>34</sup> PEO Site CSM Summary – Appendix A-15, Pg 4.

<sup>&</sup>lt;sup>35</sup> PEO Site CSM Summary – Appendix A-15, Pg 5

<sup>&</sup>lt;sup>36</sup> PEO Site CSM Summary – Appendix A-15, Pg 6

EPA Letter, Pg 27.

As shown in Photos 7 through 10, between 1956 and 1961, the Bell Oil Terminal pipeline is clearly visible aboveground on the Bell Oil Terminal property (*see* Photos 22 &23 for the superimposed property lines, provided by the City of Portland). However, west of the Bell Oil Terminal/SIC property line, the pipeline is no longer visible aboveground because it was buried across the length of the PEO Site until it surfaced at the east bank of the Willamette River just prior to the Bell Oil Terminal's T-shaped river dock, *see* Photos 7-13.

The 1973 breach of the abandoned Bell Oil Terminal pipeline occurred as part of the construction of PEO's vegetable oil refinery and associated tank farm. In 1976, Time Oil filed a Complaint In Equity against SIC and PALMCO (aka PEO, a subsidiary of Mitsubishi Corporation)<sup>38</sup> in Multnomah County Circuit Court for Time Oil's business losses and damages reportedly sustained as a result of the removal the Bell Oil Terminal pipeline, *Bell Oil Terminal Co. vs. Schnitzer Investment Corp and PALMCO*. <sup>39</sup> Depositions were taken in 1976 of the construction Project Manager for PEO and the President of the Bell Oil Terminal to "flesh out" the facts surrounding the pipeline's removal and to clarify Time Oil's actual damages. It should be noted that these depositions occurred prior to the enactment of either RCRA or CERCLA; and, undoubtedly, more accurately reflect what actually occurred in 1973 than do Time Oil's current allegations, which arise more than 30 years after the fact.

Two of the 1976 deponents were Mr. Edward D. Moschetti (Project Superintendent, C Norman Peterson Company, PEO's construction contractor) and Mr. Newton Lesh (Vice President of Time Oil and President of the Bell Oil Terminal). Mr. Donald J. Zarosinski (President of Zarosinski-Tatone Engineers), who was PEO's project engineer for purposes of building the edible oil facility tank farm, submitted a sworn affidavit. The statements of all three of these individuals contradict Time Oil's current allegations. A disc containing PDF copies of those depositions is provided at Appendix A.

Mr. Moschetti said that when the construction work for the PEO facility began in 1973, the PEO property was "[j]ust flat. Nothing visible showing."40 This statement is consistent with what is seen in the 1972 and 1973 aerial photos of the property, *see* Photos 13 & 14. In an August 1968, *see* Photo 12, the Bell Oil Terminal dock appears to be in use and appears to have log rafts moored to it. By 1972, *see* Photo 13, the dock looks to be more dilapidated and appears to be is missing some dock planking between the river's edge and the end of the dock.

In discussing the 1973 appearance of the PEO Site, Mr. Moschetti noted that "there was a few valve boxes like a pipeline should be there," as well as "some old water lines, old buried lines that were all abandoned. Everything there was abandoned." Mr.

<sup>40</sup> Deposition of Edward Moschetti, February 25, 1976 (hereinafter referred to as the "Moschetti Deposition"), Pg. TO 141218.

<sup>&</sup>lt;sup>38</sup> Bridgewater Group Inc., September 1998 report entitled, *Summary Report: Focused Site Characterization for 10400 N. Burgard Way*, Pg 1-1.

<sup>&</sup>lt;sup>39</sup> Case # 414659

<sup>&</sup>lt;sup>41</sup> Moschetti Deposition, Pg TO 14128.

<sup>42</sup> Moschetti Deposition, Pg. TO 141221

Moschetti said that part of his job "was to dig that whole area down, that whole site five feet and recompact the area." <sup>43</sup>

According to Mr. Moschetti, a bulldozer operator was the first person to encounter the Bell Oil Terminal pipeline when he "pushed one end down by the dock, down by the river ... and found it kept going. ... then when it did break, there was some oil come out of it, and that's when we questioned it."<sup>44</sup> The bulldozer operator had "started working at the riverside where this pipeline left the dock area and went underground."<sup>45</sup> Between the dock and the Bell Oil Terminal, the pipeline "never was above-ground. It was ... only... exposed in the slope of the bank down to the beach."<sup>46</sup> He said the bulldozer operator pushed the line for approximately "30 feet" before he "finally began to wonder what was going on."<sup>47</sup> He noted that when the pipeline broke "some oil came out of it."<sup>48</sup> When the pipeline was removed there was "at least, 300 feet" of 10-12-inch diameter steel pipe.<sup>50</sup> The pipeline was located about three feet below ground surface<sup>51</sup> and the pipeline was removed up to the Bell Oil Terminal property line.<sup>52</sup>

Mr. Moschetti said the pipeline was removed because the Peterson Company "was always under the impression that ... it was ... no good."<sup>53</sup> There was even talk that there was no business going on at the dock to which the pipeline was attached.<sup>54</sup> He further testified that no "Time or Bell Oil or Northwest Terminal people" came out or spoke with him when the pipeline was removed.<sup>55</sup>

Mr. Zarosinski stated in his affidavit that, "Prior to commencement of site work, I examined with the contractor's representatives the construction site to determine the existence, if any, of sub-surface and other problems. All piping observed was assumed to be remnants of World War II shipyard days. There was no indication of any operative pipeline serving" the Bell Oil Terminal. "It was my understanding that the site had underlain a World War II shipyard, which had been abandoned for some years. It was assumed that there would be a considerable amount of abandoned foundation, pipes and similar objects within the job site, as in fact occurred." 57

"There was also a dilapidated and apparently abandoned dock directly off-shore from the

<sup>43</sup> Moschetti Deposition, Pg TO 141221

<sup>44</sup> Moschetti Deposition, Pg. TO 141222

<sup>&</sup>lt;sup>45</sup> Moschetti Deposition, Pgs TGO 141222 and TO14240

<sup>46</sup> Moschetti Deposition, Pg. TO 141240

<sup>47</sup> Moschetti Deposition, Pg TO 141240

<sup>48</sup> Moschetti Deposition, Pg. TO 14122-141224

<sup>&</sup>lt;sup>49</sup> Moschetti Deposition, Pg. TO 141225

<sup>&</sup>lt;sup>50</sup> Moschetti Deposition, Pg.141226, Mr. Lesh said it was "10-inch Schedule 40 pipe" at Pg. 23 of his deposition.

<sup>51</sup> Moschetti Deposition, Pg. TO 141231

<sup>&</sup>lt;sup>52</sup> Moschetti Deposition, Pg. TO 141225

<sup>53</sup> Moschetti Deposition, Pg. TO 141231

<sup>&</sup>lt;sup>54</sup> Moschetti Deposition, Pg TO 141231

<sup>55</sup> Moschetti Deposition, Pg. TO 141227

<sup>&</sup>lt;sup>56</sup> March 18, 1976 Affidavit of Donald J. Zarosinski (hereinafter referred to as the "Zarosinki Affidavit"), Pg.1

<sup>&</sup>lt;sup>57</sup> Zarosinki Affidavit, Pg 2

job site; which was to be razed as part of the construction project, and a new dock constructed,"58 see also Photo 14. Regarding the alleged spill Mr. Zarosinski wrote, "I have been advised that Mr. Moschetti, job foreman for the contractor, saw 'some' oil leak from ... [the pipe], but I myself saw nothing. Certainly any oil present would have been in very small amount, and quickly absorbed by the sand."59

Mr. Newton P. Lesh, the President of Bell Oil Terminal Co. and Vice-President of Time Oil Co., testified that Bell Oil Terminal Company and Northwest Terminal Company are wholly owned subsidiaries of Time Oil Company; and, that Time Oil Company's basic business is the wholesale distribution of petroleum products and storage of various liquid products.<sup>60</sup> He said that, "Bell Oil Terminal Company was formed by Time Oil Company ... in about 1953 as [an] operating terminal for the storage of petroleum products."61 Reportedly, Time Oil Company leases the Northwest Terminal and the Bell Oil Terminal and then operates the petroleum business; Time Oil has leased the Bell Terminal since about 1953.62 Time Oil Company brought petroleum products to the Bell Oil Terminal "by tanker or barge and [took] it out by barge or by truck." The Bay Construction Co., which was located in Portland, originally constructed the Bell Oil Terminal pipeline in about 1953.64 The pipeline reportedly was a 10-inch Schedule 40 steel pipeline<sup>65</sup>. Prior to the 1973 removal of the pipeline on the PEO property, Mr. Lesh did not know the last time petroleum product had been pumped through the Bell Oil Terminal pipeline.<sup>66</sup> He did not testify that it was "still in use and containing product during the site construction activities," as subsequently alleged by Time Oil, see Footnote 35 above.

Mr. Lesh said the Northwest Terminal Company's dock, which was located north of the Bell Oil Terminal dock, adjacent to the Northwest Terminal, *see* Photos 12, 13 & 14. The dock was rebuilt in 1970-71<sup>67</sup> and had three "8-inch pipes from (the) Bell (Oil Terminal) to (the) Northwest (Oil Terminal), and then down to the (re-built Northwest) dock." He said that the distance from a large 80,000-gallon storage tank in the Bell Oil Terminal to the re-built Northwest dock is approximately 1,200 feet, whereas the distance from the same tank through the old Bell Oil Terminal pipeline to its dock was approximately 1,600 feet. Mr. Lesh said that once the three 8-inch pipelines were built between the Bell Terminal and the Northwest Terminal, he could not recall any occasion when the old Bell Oil Terminal pipeline was used by Time Oil to off-load ships or

58 Zarosinki Affidavit, Pg 2

<sup>&</sup>lt;sup>59</sup> Zarosinki Affidavit, Pg 2

 $<sup>^{60}</sup>$  Deposition of Newton P. Lesh, February 25, 1976 (hereinafter referred to the "Lesh Deposition"), Pg 5.

<sup>61</sup> Lesh Deposition, Pg 9.

<sup>62</sup> Lesh Deposition, Pg 11.

<sup>63</sup> Lesh Deposition, Pg 14.

<sup>64</sup> Lesh Deposition, Pg 21.

<sup>65</sup> Lesh Deposition, Pg 23.

<sup>66</sup> Lesh Deposition, Pg 25.

<sup>67</sup> Lesh Deposition, Pg 14.

<sup>68</sup> Lesh Deposition, Pg 28, (explanatory parenthetical added).

<sup>69</sup> Lesh Deposition, Pg 29.

barges.<sup>70</sup> One or two vessels per month moored at the Northwest Terminal Company dock to discharge petroleum products.<sup>71</sup>

Mr. Lesh said that the Bell Oil Terminal dock was taken down in approximately June 1973.<sup>72</sup> He said the last time he inspected the Bell Oil Terminal dock the "pilings had started to deteriorate ... and some of the planking was beginning to deteriorate" and the company wasn't "using it at that time."<sup>73</sup> He indicated that, based upon the dock's condition at the time the pipeline was removed, a large ship could not have tied up to the dock to discharge petroleum product; however, a barge might.<sup>74</sup>

Mr. Lesh confirmed Mr. Moschetti's testimony that neither Mr. Lesh nor any of his personnel had any discussion with the people involved with bulldozing the Bell Oil Terminal pipeline.<sup>75</sup> These individuals included Mr. Moschetti and the Peterson Construction Company personnel.<sup>76</sup> Given the commercial value of petroleum products, this non-response by Time Oil at the time of the breach would have been highly irregular had the pipeline been "still in use and containing product" as alleged by Time Oil, *see* Footnote 35.

Based upon Mr. Lesh's testimony, the distance from the Bell Oil Terminal to the dock via the Northwest Oil Terminal pipeline was 25% shorter in length and had more than twice the pumping capacity of the older Bell Oil Terminal pipeline. This shorter transport distance and increased carrying capacity should have significantly decreased Time Oil's operating costs in handling the fluids transported via the Northwest Oil Terminal's pipeline, thus explaining why Time Oil discontinued using the Bell Oil terminal pipeline years before its breach and why only "some oil" came out the breached pipeline.

Mr. Lesh speculated that a ship must have been moored to the dock when the pipeline broke because "[t]he pipeline was full of diesel when they broke it, so we had to have a ship out there or something to fill the pipeline with diesel." When asked to explain how he knew the pipeline was full of diesel, he said it was because that's what Mr. Moschetti testified; but, Mr. Lesh admitted that he had not seen the alleged release. Further, Mr. Lesh was incorrect as to Mr. Moschetti's testimony. Mr. Moschetti simply said that "some oil come (sic) out," see footnote 49. At the time Mr. Lesh inspected the removed pipeline it was in a "pretzel condition" and he neither looked for nor saw any oil. "9"

<sup>70</sup> Lesh Deposition, Pgs 33 & 54.

<sup>71</sup> Lesh Deposition, Pg 97.

<sup>72</sup> Lesh Deposition, Pg 60-61.

<sup>73</sup> Lesh Deposition, Pg 63.

Lesii Deposition, Pg 65.

<sup>&</sup>lt;sup>74</sup> Lesh Deposition, Pg 95-96.

<sup>75</sup> Lesh Deposition, Pg 35.76 Lesh Deposition, Pg 39.

<sup>&</sup>lt;sup>77</sup> Lesh Deposition, Pgs 60-61.

<sup>78</sup> Lesh Deposition, Pg 61.

<sup>79</sup> Lesh Deposition, Pg 62.

In discussing the condition of the Bell Oil Terminal pipeline, Mr. Lesh said there were no repair records for the Bell Oil Terminal pipeline<sup>80</sup> and that he knew of no records indicating the pipeline was pressure tested every year.<sup>81</sup>

A review of the April 1975, Complaint In Equity, in *Time Oil v Schnitzer Investment Corp and PALMCO, Inc.*, found that Time Oil alleged the defendants:

"caused [Time Oil's] pipeline located on the easement [across the PEO Site]... to be torn up and removed and defendants caused large tanks for storage of liquids to be constructed over and upon said easement, thereby permanently obstructing the easement and depriving [Time Oil] ... of the use and benefit of said easement and the pipeline situated thereon.

"As a direct and proximate result of the conduct of defendants ..., [Time Oil]... has been damaged in the amount of \$50,000 for deconstruction of its pipeline and loss of use of the easement, and [Time Oil] has been damaged in the further amount of \$600,000 in diminution of the value of its property [the Bell Oil terminal] ... by reason of the interference with the easement and destruction of the pipeline... (Explanatory brackets added.)

However, the claim by Time Oil is silent regarding lost or spilled petroleum product from the pipeline. The absence of such a claim is to be expected because there was no significant release of petroleum products when the pipeline was breached. Mr. Lesh, the President of Bell Oil Terminal, didn't express any concern about the loss of any petroleum product in 1975, even though it would have been in his best business interests to do so, because only "some oil" was released. This absence of any significant amount of product within the pipeline is due to the fact, as noted by Mr. Lesh, that the pipeline had effectively been abandoned since the 1970-71 reconstruction of the Northwest Oil Terminal dockage; and, therefore, had not been used in several years.

In November 2000, Time Oil's counsel wrote to the Oregon Department of Justice "to set the record straight." To the best of our knowledge and belief, this is the first time that Time Oil raises the allegation that "gasoline or diesel spilled out of the pipeline when it was struck by a bulldozer." To support the claim of "setting the record straight," counsel submits a portion of the Edward Moschetti Deposition, Pages 8-17 (TO 141217 through TO 141226). However, in providing this "straightening" information, we note that counsel omitted providing approximately two-thirds of Mr. Moschetti's 30-page sworn testimony and omitted or withheld clarifying information related to numerous facts. Time Oil failed to submit to the Department of Justice of the following relevant facts:

<sup>80</sup> Lesh Deposition, Pg 88.

<sup>81</sup> Lesh Deposition, Pgs 88-89.

<sup>82</sup> Complaint In Equity, Pg 3.

<sup>&</sup>lt;sup>83</sup> Patricia M. Dost's November 1, 2000 letter to Lynn Perry, Assistant Attorney General, Pg 1.

 $<sup>^{84}</sup>$  Ibid.

- the pipeline and dock were basically abandoned at the time of the breach,
- no Time Oil employee saw or timely inspected the pipeline at the time of the breach,
- no Time Oil representative ever spoke with Mr. Moschetti prior to his 1976 deposition,
- the breach occurred on the west side of the PEO Site within approximately 30 feet of the shoreline and not along the pipeline easement adjacent to the PEO/Bell Oil terminal common property line, and
- only "some oil" came out of the breach and there was no effort made to characterize the type of "oil" (*i.e.*, there was no substantial spillage of diesel or gasoline, as alleged by counsel).

PEO Site investigations have found no evidence that the pipeline break resulted in a significant release of petroleum hydrocarbons. In 2000, SIC asked the Bridgewater Group Inc. (Bridgewater) to investigate potential contaminant sources on the PEO Site. As part of that investigation, Bridgewater completed three trenches across the former Bell Oil Terminal pipeline corridor on the PEO site. The trenches (Trench A, Trench B and Trench 4) were located approximately 300 feet and 360 feet east of the river's bank, and just west of the roadway that abuts the PEO/Time Oil property line, respectively. Figure WP-3 – **Summary of Trench Investigations** depicts the locations of those trenches.

Those field investigations found no indication that the 1973 pipeline removal resulted in any significant soil contamination. The Bridgewater trenches installed perpendicular to the approximate corridor of the former Bell Terminal pipeline across the PEO Site were all approximately six feet deep and extended north-south for approximately 50 ft. Based on visual field observations and the results of chemical analyses of soil samples collected from the trenches, Bridgewater concluded that there was no evidence to indicate that a significant petroleum hydrocarbon release had occurred.<sup>86</sup> In particular, no gasoline- or diesel-range petroleum hydrocarbons were detected in the soil samples collected from the pipeline-area trenches. Based on visual observations and PID readings collected during the installation for Trenches A and B, Bridgewater observed that there were "no physical indications of petroleum hydrocarbons" at these locations.<sup>87</sup>

As shown in Figure WP-3, a trench was installed along the pipeline corridor farther to the west than the previous trenches (Trench 2) and a soil boring was installed at the western end of the pipeline corridor (FPL-27). A second soil boring intended to evaluate the potential pipeline impacts near the eastern end of the former pipeline corridor was installed (FPL-64). Visual observations and PID readings collected during installation for Trenches A and B indicated there was "no visible indications of petroleum

<sup>85 3/1/06</sup> Memorandum, Attachment A, Page A-10, see also Bridgewater's August 30, 2000 Memorandum, Evaluation of Potential Sources - Premier Edible Oils, Pg 2.

<sup>86 3/1/06</sup> Memorandum, Attachment A, Page A-10, see also Bridgewater's August 30, 2000 Memorandum, Evaluation of Potential Sources - Premier Edible Oils, Pg 2.

<sup>87 3/1/06</sup> Memorandum, Attachment A, Page A-10.

hydrocarbons." Similarly, no elevated total petroleum hydrocarbon (TPH) concentrations were detected in the soil samples collected at these locations [*i.e.*, TPH-gasoline concentrations in these samples were less than 4 mg/kg while TPH-diesel concentrations were 25 mg/kg or less]. 89

On page 7, the LWG's draft CSM document acknowledges the conclusion of the Bridgewater investigations that "no major release of petroleum" related to the pipeline break had occurred in the area near the Bell Terminal-PEO boundary. In light of this acknowledgement, it is particularly misleading for the LWG's CSM document to continue to present statements suggesting that, in fact, the pipeline breakage played any significant role in the contamination observed in this area or elsewhere on the PEO or Bell Terminal sites, <sup>90</sup> see Footnotes 35-37 above.

Time Oil's allegations that the 1973 breach of the Bell Oil Terminal pipeline resulted in the release of diesel and gasoline to the environment and served or serves as a contaminant source for the residual petroleum hydrocarbon contamination on the Bell Oil Terminal and PEO Sites must be dismissed as groundless. Time Oil has failed to produce any evidence to support their accusations; in addition, they have omitted and/or misrepresented relevant facts, and their allegations are refuted by both the contemporaneous sworn testimony of third parties and Time Oil's Bell Oil Terminal President. Lastly, confirmation sampling data collected along the pipeline contains no significant petroleum product contaminant detections. The Bell Oil Terminal pipeline on the PEO Site simply is not a contaminant source.

#### Release of fuel from the 10,000 gallon diesel AST on the PEO Site

#### Time Oil Allegations:

Time Oil has stated that "several diesel ASTs are located on the adjacent property [the PEO facility] just west of this area [the 80 foot strip of land]," and the CSM Summary states "PEO constructed ... a 10,000-gallon aboveground diesel storage tank for energy backup (all on concrete pads)." The CSM further states:

"Shallow soils in the former PEO tank farm and operations are contaminated with both diesel and gasoline. For example, as noted in Bridgewater (1999 - Field Observations of Trenching Activities, Premier Edible Oils Memorandum), diesel-range hydrocarbons were found in the vicinity of the former PEO diesel storage tanks at concentrations up to 4,280 ppm. Bridgewater concluded that 'the concentration pattern strongly indicates that a release of diesel occurred in this tank farm and that the measured diesel range hydrocarbons in near-surface soils did not come from

<sup>88 3/1/06</sup> Memorandum, Attachment A, Page A-10, see also Bridgewater's August 30, 2000 Memorandum, Evaluation of Potential Sources - Premier Edible Oils, Pg 2.

<sup>89 3/1/06</sup> Memorandum, Attachment A, Page A-10, see also Bridgewater's August 30, 2000 Memorandum, Evaluation of Potential Sources - Premier Edible Oils, Pg 2.

<sup>90 3/1/06</sup> Memorandum, Attachment A, Page A-10.

<sup>&</sup>lt;sup>91</sup> Time Oil Phase III Rpt, Vol. I, Pg 8-3, (explanatory bracket added).

<sup>92</sup> PEO Site CSM Summary – Appendix A-15, Pg 4.

an off-site source.' Bridgewater also found diesel range hydrocarbons in near-surface soil samples in the PEO tank farm, which tend to indicate an on-site source for the contamination." $^{93}$ 

#### **SIC Response:**

Although, the PEO Site had a number of ASTs that were used to store edible oils, the facility had only one diesel AST that was used to store emergency backup fuel for the plant's boiler. During the tenure of the PEO operations, this diesel AST was located at two different locations on the PEO facility, *see* Figure WP-3. Time Oil's statement coupled with the CSM comments would lead the agencies conclude erroneously that because ASTs (regardless of their contents) were present on the PEO Site and because diesel hydrocarbons were found at 1.5 feet below ground surface (bgs) at 4,280 mg/kg in a single 1999 Bridgewater soil sample (TR-5)<sup>94</sup> near one of the former location of PEO's 10,000 gallon diesel AST tank, that the PEO diesel AST was the source of the residual gasoline and diesel contamination observed at the PEO Site. Further, without consideration of any of the other PEO Site soil and groundwater sampling data, Time Oil would have the agencies conclude that this single shallow soil diesel detection irrefutably establishes the 10,000 diesel AST as the source for both the gasoline and diesel contamination observed in soil and groundwater at 20 – 24 feet bgs on the east side of the PEO Site, including locations that are up gradient the PEO Site diesel AST locations.

Such a myopic conclusion asks the agencies to ignore a significant body of other relevant PEO Site soil and groundwater sampling data that was omitted from both the Time Oil and the CSM comments. Further, such a conclusion flies in the face of common sense, requires a diesel AST to become the source of both gasoline and diesel contaminants, and ignores the standard relationship between contaminant sources and observed contamination (i.e., in the absence of countervailing factors, contamination moves downhill and downgradient from the contaminant source areas).

When PEO constructed its facility in 1973-74 a large number of ASTs were constructed of which approximately twenty (20) ASTs were within 160 feet of the Bell Oil Terminal's western property line, see WP-4 – **Premier Edible Oils, Site and Exploration Map.** 95 However, the inference that the ASTs immediately adjacent to the Bell Oil Terminal contained diesel is simply incorrect. As indicated on WP-4 only one of those numerous ASTs contained diesel.

As noted by Hanson Engineers, consultants retained by PEO in 1996 to complete a Phase I Environmental Site assessment of the PEO Refinery, the PEO or PALMCO facility contained a 5,880 ft<sup>2</sup> office building, a 1,200 ft<sup>2</sup> production office building, a 15,318 ft<sup>2</sup> warehouse and a vegetable oil production plant. The PEO facility accepted shipments of crude vegetable oil and refined it into food grade vegetable oil. The facility had a total of

<sup>93</sup> PEO Site CSM Summary – Appendix A-15, Pg 5.

<sup>94</sup> Bridgewater August 25, 1999, Field Observations of Trenching Activities, Premier Edible Oils Memora ndum, Table 1.

<sup>95</sup> AGRA Earth & Environmental, Inc., November 5 1996, PHASE II ENVIRONMENTAL SITE ASSESSMENT: Industrial Property, 10400 N Burgard Way, Portland, Oregon, and Figure 2.

<sup>&</sup>lt;sup>96</sup> Hanson Engineers Incorporated, October 1996, ENVIRONMENTAL SITE ASSESSMENT (PHASE I): Premier Edible Oils Refinery, 10400 North Burgard Way, Portland, Oregon 97203, Pg 4.

25 million metric tons of insulated oil storage, of which 20 million was devoted to crude vegetable oil and 5 million was used for finished edible vegetable oil. The facility could load and off-load ships, railcars and trucks with vegetable oil. A diesel AST was located in the bermed area north of the processing plant (see Figure WP-4); this AST stored back-up fuel for the plant's boilers.

To the best of our knowledge there was no significant spill or release from the PEO diesel AST; and, Hanson observed no problems with the diesel AST. As noted above, Bridgewater did detect diesel in a shallow soil sample near the diesel AST and small surface spill(s) may have occurred resulting in diesel impacts within four feet of the surface. On Such releases could have been incidental to the periodic filling of the AST with diesel.

There were no known potential sources of gasoline contamination on the PEO Site and the highest gasoline detections occur within 40 feet of the PEO/Bell Oil Terminal property line<sup>101</sup>. However, Time Oil still asks the agencies accept that spill(s) from the PEO Site diesel AST caused both the *gasoline* and diesel contamination in the deeper smear zone and groundwater at the PEO Site, as well as at the upgradient Bell Oil Terminal. Such conclusions, which defy the laws of chemistry and groundwater flow, are not credible and must be dismissed.

In addition to the Figures and Photos noted herein, this White Paper also incorporates by reference the following documents prepared by Gradient Corporation, SIC's consultant for the PEO Site, which are included in the enclosed companion volume are incorporated herein by reference:

March 1, 2006, Gradient's Memorandum to EPA re: Comments on the Lower Willamette Group's Draft Conceptual Site Model for the Premier Edible Oil Site (hereinafter referred to "3/1/06 Memorandum"), and

Attachment A to Gradient's 3/1/2006 Memo - Gradient's Supplemental

Documentation of Comments on the LWG's CSM Document for the PEO Site (hereinafter referred to "3/1/06 Memorandum, Attachment A")

Attachment B to Gradient's 1/18/2006 Memo – Gradient's Selected

Comments on Time Oil's Final Phase III Remedial Investigation

Report [Landau, July 19, 2005] (hereinafter referred to "3/1/06

Memorandum, Attachment B")

<sup>97</sup> Ibid.

<sup>98</sup> Ibid at Pg 8.

<sup>99</sup> Hanson, Pg 8

<sup>100</sup> Bridgewater August 25, 1999, Field Observations of Trenching Activities, Premier Edible Oils Memorandum, Page 4.

<sup>101</sup> AGRA, Phase II ESA, Conclusions, Pg 5

**Appendix** to Gradient's 1/18/2006 Memo - Gradient's September 10, 2004 Memorandum to DEQ re *Comments on Time Oil's Draft Phase III Remedial Investigation Report* (Landau 2004), submitted previously to DEQ (hereinafter referred to "9/10/04 Appendix"),

Attachment A to Gradient's 9/10/04 Memo - Gradient's Supplemental Documentation of Comments on Time Oil's Phase III Remedial Investigation Report (hereinafter referred to "9/10/04 Appendix, Attachment A"),

**Attachment B** to Gradient's 9/10/04 – Historical Aerial Photographs for Bell Terminal and PEO Facilities (hereinafter referred to "9/10/04 Appendix, Attachment B"), and

Attachment C to Gradient' 9/10/04 Memo - Gradient's Supplemental Information Regarding the Bell Terminal Facility and the Information Reviewed in Preparing This Memorandum hereinafter referred to "9/10/04 Appendix, Attachment B")

As discussed in **Gradient's 3/1/06 Memorandum**, the only sizable petroleum hydrocarbon source known for the central portion of the PEO property was a single 10,000-gallon diesel AST, which was positioned at two locations during the period of operation of the PEO facility, see Figure WP-1. As one component in evaluating the allegations in the Landau *Draft Phase III RI* report, the nature of the release(s) necessary to account for the observed pattern of contamination near the western boundary of the Bell Terminal property was explored. This evaluation considered the theoretical potential for the former PEO diesel AST to release a sufficient amount of diesel product that would yield the thicknesses of petroleum hydrocarbon product (or light non-aqueous phase liquid; LNAPL) as seen at the nearby MW-04 and MW-05 locations<sup>102</sup> on the PEO Site.

Once released, LNAPLs infiltrate through the unsaturated zone of the soil, mound on the water table, and normally spread in the direction of flowing groundwater<sup>103</sup>. Therefore, any sizeable spill from the former PEO Site AST would be expected to be observed in downgradient monitoring wells (*e.g.*, MW-05, which is located downgradient of the two former PEO Site AST locations). <sup>104</sup> Groundwater flow direction at the Bell Oil terminal and the PEO Site is to the southwest from the Bell Oil terminal to the PEO site, *see* Figure WP-9 – **Assessment of Groundwater Results** – **TPH Diesel**, discussed below. Between June 2001 and January 2003, twenty three water level and product level observations were made at the PEO site; however, LNAPL has yet to be measured in MW-05. This observation is in stark contrast to the *upgradient* MW-04 location, where up to 6 feet of LNAPL have been observed during these measurement events<sup>105</sup>. The presence of LNAPL at MW-04 coupled with its absence at MW-05 indicates that the

<sup>102</sup> 3/1/06 Memorandum, Figure 6.

<sup>103</sup> El-Kadi, A. 1994. Applicability of Sharp-Interface Models for NAPL Transport: 2. Spreading of LNAPL. Groundwater 32(5):784-793.

<sup>104 9/10/04</sup> Appendix, Attachment A, Page A-13; see also, 3/1/06 Memorandum, Attachment A, Pg. A-30,

<sup>105 9/10/04</sup> Appendix, Attachment A, Pg A-13.

LNAPL source at MW-04 could not be the downgradient, former diesel AST tank on the PEO property.<sup>106</sup>

Based on the characteristics of the PEO Site, we asked Gradient to calculate the volume of a hypothetical release from the former PEO Site diesel AST that would be necessary to generate the apparent 6 feet of floating LNAPL thicknesses observed at MW-04. The calculation required the unrealistic assumption that LNAPL would spread upgradient, against gravity, to MW-04. An example schematic of this calculation is shown in the accompanying Gradient 9/4/2004 Appendix, Attachment A., Figure A-5, which illustrates the calculation completed for the former PEO Site AST location that was closest to MW-04 (i.e., approximately 40 ft from MW-04 and approximately 140 feet from MW-05). Based on this unrealistic scenario, a release of more than 50,000 gallons would be required to generate the high end of the range of observed LNAPL thicknesses. <sup>107</sup> Fifty thousand gallons of diesel is five times the storage capacity of the former diesel AST at the PEO Site. For the other former AST location, which was located even farther away from MW-04 (and still closer to MW-05), the volume of the hypothetical release was even greater. Moreover, even if a hypothetical scenario is applied, it is not possible to credibly hypothesize that an AST storing *diesel* fuel would generate the *gasoline* contaminant detections that have been observed at the PEO Site and that Time Oil attempts to link to PEO-related sources.

These evaluations demonstrate the implausibility of the allegations made in the Time Oil *Phase III RI Report* and elsewhere, as to the role of the alleged PEO Site sources for the petroleum hydrocarbon contamination observed at the PEO-Bell Terminal property boundary. As discussed above, the conditions necessary to generate the observed product presence near the property boundary would have required a product release from the PEO Site diesel AST in quantities that was more than five times the total storage capacity of the AST, the released material would have had to flow a substantial upgradient distance while simultaneously not significantly impacting the downgradient well MW-05.<sup>108</sup> Moreover, to account for the gasoline contamination observed in the area near the PEO-Bell Oil Terminal boundary, some portion of the material would have had to change from diesel to gasoline. Acceptance of Time Oil's explanation as to the source of petroleum product contamination on the east side of the PEO Site adjacent to the Bell Oil Terminal requires a stretch of faith that is simply too great to be plausible.

As discussed above, each of the Time Oil allegations as to the source of the residual petroleum contamination on the PEO Site fail for lack of supporting evidence.

<sup>106</sup> Ibid

<sup>107</sup> Ibid at Pgs. A13 - A14. This calculation was made for the AST location closer to MW-04. The calculation assumed soil porosity of 0.35, LNAPL saturation of 0.85, and a floating LNAPL thickness at MW-04 of 1.25'. Floating LNAPL thickness was calculated using de Pastrovich equation (a/k/a CONCAWE) (as cited in Hampton and Miller, 1988).

<sup>&</sup>lt;sup>108</sup> Ibid, Pg A-14.

#### III. MORE PLAUSIBLE PEO SITE CONTAMINANT SOURCES

After considering the above, we dismissed Time Oil's allegations as to the source(s) of the residual contamination as unsubstantiated and we asked Gradient to review the existing data for a more plausible explanation as to the actual source(s) of the contamination. In undertaking their review Gradient evaluated several issues including:

- The relative storage capacity of the PEO and Bell Oil Terminal facilities (i.e., storage of edible vegetable oils in the tank farm and up to 10,000 gallons of diesel fuel at the PEO Site vs. storage of a number of types of petroleum hydrocarbon fuels, including both gasoline and diesel, in the greater than 12 million gallon Bell Oil Terminal tank farm),
- Potential source(s) for both the gasoline and diesel contamination on the PEO Site,
- Surface Soil Contamination vs. Capillary Fringe Zone and/or Groundwater Contamination

#### **Types of Product and Storage Capacity:**

A significant point of consideration that seems to be continually overlooked in both the Time Oil documents and the LWG's CSM report is the fact that for the most part PEO only stored edible oils at its facility. There was one 10,000 gallon diesel AST used to store emergency fuel for the plant's boiler at the PEO Site; but, there is no record or evidence of a release from that AST other than possibly some incidental spillage while fueling the tank, which resulted in some low diesel detections in the shallow soil (i.e., generally less than four feet bgs). Further, there is no evidence that gasoline was ever stored at the PEO Site, other than that found in the gas tanks of employee and company vehicles.

In contrast, the Bell Oil Terminal handled a broad range of petroleum-based fuels including gasoline products, diesel, jet fuel, lubricants and other products, as is documented in the deposition of testimony discussed below, *see* Footnote 157 below. Bell Oil Terminal was a bulk fuel transfer facility whose business was the storage and transfer of fuel products. Bell Oil Terminal had a storage capacity in excess of 12,000,000 gallons; 109 see Figure WP-5– Relative Petroleum Storage Capacity at the PEO & Bell Terminal Sites 110.

Unfortunately, the DEQ has no required Time Oil to critically assess the historical operation and management practices at its Bell Oil Terminal facility. Given the 50-year operational period of the Bell Oil Terminal and the significant evolution in petroleum product handling practices during that same time, this omission appears to be a glaring shortcoming in Time Oil's work to date. Further, it must be presumed that releases of petroleum products, both gasoline and diesel, occurred during that 50-year period and that they contributed to the residual contamination at the PEO Site.

<sup>109 3/1/06</sup> Memorandum, Page 4.

<sup>110</sup> 3/1/06 Memorandum, Figure 2.

That presumption can only be rebutted based upon systematic and technically sound soil and groundwater sampling data that yield no contaminant detections or very low detections of contaminant constituents in valid sample analyses. Such sampling data should reflect comprehensive sampling of the area between the Bell Oil Terminal AST's and the western property line. Each sample location should include discrete samples of shallow soil, intermediary soils, capillary fringe soils and groundwater; as well as sample analyses for the full suite of petroleum product related analytes. Although some portions of this work have been conducted at the Bell Oil Terminal, the existing data are incomplete and suffer from a number of technical deficiencies, as described in greater detail in *Gradient's 3/1/06 Memorandum* and *9/10/04 Appendix* that accompany this White Paper.

To date, the DEQ has not required this type of investigatory work to be completed at the Bell Oil Terminal. In light of the readily apparent and potential contaminant sources posed by a 50-year old, multi-million gallon petroleum product storage, the agency's failure to date to require this type of investigatory work flies in the face of reason and are inconsistent with the DEQ-EPA Joint Control Strategy for the Portland Harbor.

#### **Potential Diesel Sources at Bell Oil Terminal:**

Evaluation of available chromatograms from GC/FID TPH chemical analyses of groundwater and soil samples collected from the under Bell Oil Terminal and the PEO Sites reveal a continuous presence of petroleum hydrocarbons in the smear zone. The chromatograms are generally consistent for the diesel range components, indicating the TPH-diesel can be attributed to a common source. Figure WP-6 – Comparison of Chromatograms Illustrating Diesel Composition for the Bell Terminal and PEO Properties 112 reproduces the chromatograms for samples from locations for which chromatograms were available, namely: BT-04, LW-32, BT-03, BT-05, LW-30S, SCH-61, SCH-62, MW-04, and GW-04. Seven of the nine chromatograms are from Bell Oil Terminal sample locations; and, include samples collected from the eastern and central portions of the Bell Oil Terminal, as well as samples collected from the western portion of the facility. One sample location is on the common property line between the sites and the last sample location is at MW-4 located just west of the property line on the PEO Site.

The diesel range materials are present in the center of each chromatogram, and appear consistent with each other. The data indicate a diesel contamination layer that at the very least begins at the center of the Bell Terminal property and extends downgradient to the west and southwest to impact the eastern portion of the former PEO property<sup>113</sup>.

As discussed above, the only petroleum storage capacity at the PEO facility was a single 10,000-gallon diesel aboveground storage tank (AST) located approximately 100 feet west of the PEO-Bell Terminal property boundary. The PEO Site diesel AST had less

<sup>111 3/1/06</sup> Memorandum, Attachment A, Page A-31.

<sup>112 3/1/06</sup> Memorandum, Attachment A, Figure A-11

 $<sup>113\ \ 3/1/06\</sup> Memorandum,\ Attachment\ A,\ Page\ A-31,\ \textit{see also},\ 9/10/05\ Appendix,\ Attachment\ A,\ Pgs\ A-11-A12.$ 

<sup>114</sup> Evaluations of PEO Site documentation indicate that the 10,000-gallon diesel AST was located at two different locations during the period of operations of the PEO Site (Bridgewater Group, 2001a). One location was approximately 80 ft downgradient of the

than 0.1% (or <1/1,000) of the storage capacity of the Bell Terminal facility and served as a "back-up fuel supply for the processing plant boilers. No problems were observed with this tank." Further, as discussed above, a release or releases from the PEO Diesel AST could not have accounted for the pattern of contamination observed in the upgradient area that Time Oil alleges was affected by sources on the PEO property

#### Potential Gasoline Sources on the PEO and Bell Oil Terminal Sites:

Available information provides no indication that gasoline was used to any appreciable extent at the PEO Site. This calls into question Time Oil's allegations that activities associated with the PEO Site contributed significantly to gasoline contamination observed at the PEO Site or the western portion of the upgradient Bell Oil Terminal.

The LWG's CSM document attempts to suggest that DEQ determined that sources of gasoline contamination existed on the PEO Site, stating that a DEQ, December 19, 2000, ESCI File Review Memorandum "concluded that the sources of petroleum contamination could be from historic operations (1940s to 1998) on the north parcel associated with diesel and gasoline storage and handling, the 1973 onsite Bell Terminal Pipeline release, and/or from offsite (i.e., the Time Oil bulk petroleum terminals)."[Emphasis added]<sup>116</sup> This statement suggests that DEQ identified potential gasoline sources located within the northern parcel of the PEO property and associated those gasoline releases with PEO operations. However, in the original DEQ document, the *italicized* phrase above is not part <sup>117</sup> of the DEQ's findings. Further, the referenced statement itself is not found within Section 7.0 -Conclusions to the File Review Memorandum; but rather, within the discussion in Section 2.4 - Site Investigations for the PEO North Parcel. The actual quote, see Footnote 122 below, equally implicates all the named locations; and, DEQ actually concludes that a remedial investigation of the former PEO Site was needed. 118 In Section 6.0 - Summary and Identification of Data Gaps of its File Review Memorandum, DEQ identified the need to "Determine if contaminated groundwater is migrating onto the [PEO] Site from the Time Oil and Bell Terminals;"119 a fact that was conveniently omitted from the LWG's CSM document.

In stark contrast to the PEO Site's diesel product storage capacity, the Bell Terminal facility consisted of ten (10) ASTs with more than 12 million gallons of storage capacity, an underground storage tank, a petroleum product loading rack, and associated above-and below-ground piping networks, *see* Figure WP-5. Gasoline products, diesel, jet fuel, other petroleum products were handled at Bell Oil Terminal during its 50-year operational history. The voluminous petroleum storage and handling facilities at the upgradient Bell Oil Terminal facility far outweigh those present on the PEO property

PEO/Bell Terminal property boundary, while the other location was approximately 135 ft downgradient of the PEO/Bell Terminal property boundary; 3/1/06 Memorandum, Attachment A, Pgs A-1 to A-3.

<sup>115</sup> Hanson 1996, Page 8.

<sup>116</sup> PEO Site CSM Summary – Appendix A-15, Pg 9; see also, 3/1/06 Memorandum, Attachment A, Pg A-2.

<sup>117</sup> DEQ December 19, 2000 File Review Memorandum – Former Premier Edible Oils Site, Page 6, the relevant part of which states "The sources of the contamination could be from historic operations (1940s to 1998) on the north parcel, the on-site Bell Terminal pipeline release, and/or from offsite (i.e., the Time Oil bulk petroleum terminals). The investigations did not adequately define the full extent of the contaminated ground water plume...," see also, 3/1/06 Memorandum, Attachment A, Pg A-2.

<sup>118</sup> DEQ December 19, 2000 File Review Memorandum – Former Premier Edible Oils Site, Pages 10-11.

<sup>119</sup> DEQ December 19, 2000 File Review Memorandum – Former Premier Edible Oils Site, Page 10, [Explanatory brackets added].

both in the magnitude and diversity of petroleum materials handled and their operational time periods (50 years vs. 27 years, respectively).

Although the contaminant concentration patterns of TPH-gasoline and TPH-diesel in groundwater and of TPH-gasoline in the smear zone soil are less consistent, the available data indicate the presence of elevated concentrations of TPH-diesel and TPH-gasoline in a widespread contiguous area encompassing the central and western portions of the Bell Oil Terminal and an area of the central portion of the downgradient PEO property, 120 see Figures WP-7 and WP-9.

In reviewing the available shallow soil, smear zone and groundwater data for the Bell Oil Terminal, Gradient developed a much more plausible scenario as to the source of the petroleum contamination. As illustrated in Figures WP-7 – **Assessment of Capillary Fringe Zone Soil Results –TPH Gasoline**<sup>121</sup>, WP-8 - **Assessment of Capillary Fringe Zone Soil Results –TPH Diesel**<sup>122</sup> and WP-9<sup>123</sup>, both gasoline- and diesel-range TPH concentrations were widely detected in the smear zone soil (collected at depths greater than 15 feet bgs) and the groundwater throughout the central and western portions of the Bell Oil Terminal property. That contamination extended through an area encompassing the central portions of the downgradient PEO property. The smear zone soil concentrations of diesel reflect a concentration gradient with the highest concentrations detected in sample locations on the Bell Oil Terminal property and generally decreasing in concentration at downgradient locations on the PEO Site, Figure WP-8. This scenario is consistent with the chromatographic data discussed above, <sup>124</sup> see WP-6.

#### **Operational Sources at Bell Oil Terminal:**

In addition to any incidental or accidental releases or leakage that Time Oil acknowledges may have occurred during the Bell Oil Terminal's half century of operation, a review of American Petroleum Institute (API) guidance manuals for the operational time periods of all the Time Oil terminals indicates the probability for substantial releases of petroleum hydrocarbons at these terminals. These API Manuals are discussed in greater detail below. Time Oil employees testified that they followed industry practices in managing "tank bottoms" and/or tank sludges at the Bell Oil Terminal (*see* Section V below) by releasing the sludges onto the surface of the tank farm soil or burying them in pits within the tank farm.

In particular, API guidance manuals from 1939 through 1982 reflect the standard industry practice of disposing of sludge from tank cleanings on the tank farm's ground surface or – in the case of leaded gasoline – burying it in the ground at the tank farm. Reflecting the understanding of the times, these API Guidance Manuals emphasize procedures for preventing fires and explosions during tank cleaning, but are generally silent regarding

<sup>120 3/1/06</sup> Memorandum, Page 10.

<sup>121</sup> 3/1/06 Memorandum, Figure 3.

<sup>122 3/1/06</sup> Memorandum, Figure 4.

<sup>123</sup> 3/1/06 Memorandum, Figure 5.

<sup>124 3/1/06</sup> Memorandum, Page 10.

<sup>125</sup> API 1955 B Manual on Cleaning Petroleum Storage Tanks: Section B - Gasoline Tanks, Paragraphs 39 & 40.

the potential for environmental contamination posed by the recommended tank cleaning practices. Based upon Time Oil employee testimony, it is reasonably certain that hundreds of thousands of gallons of tank sludges were disposed of at the Bell Oil Terminal tank farm alone. This substantially underscores the potential for the presence of petroleum hydrocarbon contaminant sources at the upgradient Bell Terminal property. Based on the information available for public review to date, the potential Bell Oil Terminal tank farm contaminant sources have yet to be adequately investigated in work completed to date by Time Oil.

For reasons set forth above, as well as those discussed below, the most plausible sources for the residual diesel and gasoline contamination at the PEO Site and the adjacent Time Oil terminals are from historic petroleum product storage operation and maintenance practices by Time Oil; and, the known releases that occurred on those terminal properties.

#### IV. <u>CONTAMINATION ASSOCIATED WITH THE FORMER NORTHWEST</u> <u>OIL COMPANY TANK FARM</u>

For some time prior to 1939, *see* Photo 1, the Northwest Oil Company operated a petroleum storage tank on the northwest corner of what is now the SIC's Burgard Industrial Park and what became in 1941, Oregon Shipyards Building Way #1, *see* the area noted by "C" on Figure WP-10 – **Oregon Shipyards, March 1945**, <sup>126</sup> for the location of Way 1. To the best of our knowledge, construction of this tank farm was the first industrial use made of the property.

A 1945 publication, *OREGONSHIP: A Story of a Shipyard – Its Beginning and Development from the Year 1941 through 1945*, by Julie Osborn, celebrates the remarkable story of Portland's Liberty Ship building effort during World War II. In February 1941, one of the first acts of the Oregon Shipbuilding Corporation was to cause the Northwest Oil Company tank farm to be moved from its existing location on the area where the shipbuilding Ways were to be constructed to an area north of the Outfitting Dock (aka Fitting Basin, or Ship Channel), see Figure WP-10. It should be remembered that the imminent threat of U.S. involvement in World War II and the need for an expanded merchant marine required Oregon Shipbuilding Corp to proceed with ship construction as quickly as possible. Oregon Shipbuilding Corporation made its name on the speed with which it could build Liberty Ships (one per day), as well as their reliability and vessel seaworthiness.

On February 4, 1941, "a project that involved the moving of approximately 3,500,000 cubic yards of earth and the driving of around 30,000 piles (ranging from 35 to 60 feet in length) was begun." By June 1941 the ship building Ways were busy, *see* Photo 2 and by September 1941 the first Liberty Ships were beings launched, *see* Photos 3 & 4. This was extraordinary progress for a seven month period of time.

The portion of the work that began on February 4, 1941, is of import to this discussion, because it involved the actions of the oil company employees who moved the Northwest Oil Company tank farm from the south side of the Outfitting Dock, *see* Photo 1, to the north side of the Outfitting Dock, *see* Photos 2-5. It is recounted here because it is illustrative of the mindset of that era and indicative of the speed with which the employees needed to move those tanks. However, the 1941 moving of the ASTs had adverse results and is probably representative of what happened in 1943 when the US was fully involved in a war in the Pacific and the tanks were moved a second time. The 1941 tank movement resulted in the following:

In the vicinity of what eventually became Way I squatted the Northwest Oil Company. According to agreement, it was to vacate that territory and settle on

<sup>126</sup> Bridgewater Group Inc., Summary Report: Focused Site Characterization for 10400 N. Burgard Way, September 1998, Appendix C Historical Site Maps

<sup>127</sup> OREGONSHIP, Pg 5.

<sup>128</sup> OREGONSHIP, Pg 11.

<sup>129</sup> OREGONSHIP, Pg 12.

the north side of what was to be the Outfitting Basin. The first spadeful of earth turned concerned this move. Sam Fullman, pioneer in the Materials Department, had cause to remember the day that the tanks were empted and moved. A pond of oil had formed from the drainage of the tanks, and as a cat had spread sand over it, the surface appeared normal to the swing shifters who began work at dusk. Fullman, bent upon a hurried mission, started to run across the spot. In a moment, he was plunging, knee deep, through a thick, dark mess, and by the time he emerged he looked ready for a feather finish." [Assumedly as in "tar and feathers.]

Although Ms. Osborne appears to have included Mr. Fullman's mishap as a humorous anecdote to the larger shipyard story, it makes rational sense in its historical context and in 1945 Ms. Osborn had no reason to invent contamination facts.

Nevertheless, Time Oil's counsel attempted to disparage Ms. Osborn's account <sup>131</sup> and nullify the implications of Northwest Oil Company's drainage of the storage tanks onto the sandy soil in sufficient quantity to generate a "pond [that was] knee deep." Despite counsel's protests to the contrary, the incident is attributable to an identifiable person, Mr. Fullman, and is indicative of the hectic World War II times in which it occurred.

The relocated tank farm remained on the north side of the Outfitting Dock from approximately February 1941 until Northwest Oil sold the land to the United States of America on December 11, 1943.

There were seven large vertical ASTs on the PEO property and several horizontal ASTs, *see* Photos 4 & 5. These tanks were used from pre-World War II days through the heart of the war. Although undocumented, there is substantial sampling data "evidencing" that spills and releases of petroleum products occurred at the Northwest Oil's terminal on the PEO Site, notwithstanding counsel assertions to the contrary, *see* below.

In late 1943 - early 1944, Northwest Oil moved the petroleum tanks northward to the current location of Time Oil's Northwest Terminal, *see* Photo 4. Given the need for speed and the sense of urgency in winning World War II had increased rather than

<sup>130</sup> OREGONSHIP, Pg 11.

<sup>131</sup> November 1, 2000, Patti Dost, Schwabe Williamson & Wyatt, letter to Lynne Perry, Assist AG, OR Depart of Justice, Pg 2
Historically, the Northwest Oil terminal moved twice to reach the present location of Time Oil's Northwest Terminal. Until
approximately 1941, the Northwest Oil terminal was located south of the Premier property, in the area in which ship
construction berths (and possibly part of the slip) are shown... In approximately 1941, the terminal briefly moved just
north of the slip. In 1943, the terminal moved to the present Northwest Terminal location.

Schnitzer's consultants paraphrase text from an out-of-print book in which the author apparently relates a story about an unidentifiable person (how many levels of hearsay is that?) who witnessed an "oil" spill at the original location of the terminal (south of the slip). Whatever the truth about this spill is, at the time of the spill the terminal was located south of the current slip, in an area that was subsequently excavated for the ship construction berths. If this spill ever happened, it's not there now. And, in any event, this spill allegedly occurred on a completely different piece of property, not the Premier site. There is no such "evidence" of a release at the Northwest Oil terminal's interim location north of the slip.

<sup>132</sup> Chain of Title Report in Bridgewater's September 13, 2000 Memo, Additional Evaluation of Northwest Terminal Tanks – Premier Edible Oils

subsided between February 1941 and December 1943, it is reasonable to presume that the petroleum product handling practices that occurred in the Way I area may have also occurred in the southwest corner of the PEO site. It is also reasonable to presume that petroleum product disposal onto the surface of the sandy soils occurred when the tanks were moved to the Northwest terminal location and during routine cleaning of the tanks.

Once the Northwest Oil Terminal tank farm was removed from the PEO Site, a paint storage warehouse was constructed on that area, *see* Figure WP-10. The Liberty Ships were coated with paint to protect the ship's metal and wood components from rusting or deteriorating in the aggressive marine environment. In discussing the paint storage building, Ms. Osborne writes:

Cans of paint are stacked high, for the painters withdrew nearly 41,500 gallons of paint monthly. There are about 75 different kinds of brushes, with a big supply of each for painters wear out about 1500 brushes monthly. ... You also see quantities of cleaning fluids, ... oil, putty and cork ... "133"

In the southern portion of the PEO Site, which includes the former Northwest oil Company tank farm, areas of diesel- and gasoline-range petroleum hydrocarbon contamination were observed in the smear zone and groundwater<sup>134</sup>. Soil, groundwater and floating product contamination evidencing such gasoline, diesel and solvent releases were found in the area of and downgradient from the former Northwest Oil's tank farm. Figures WP-11 – TPH-Diesel Concentration Observed in Soils at Depth, WP-12 - TPH-Gasoline Concentration Observed in Soils at Depth, WP-13 – Product Observed in Monitoring Wells and WP-14 - TPH-Gasoline and TPH-Diesel Observed in Groundwater <sup>135</sup> illustrate the detected gasoline and diesel concentrations in and around the former Northwest Oil Corporation tank farm.

As illustrated on Figure WP-13, the southwest corner of the PEO Site is the only area beneath the PEO Site where floating petroleum product (up to 4 feet in thickness) has been observed in on-site monitoring wells, except for MW-04 located immediately west of the Bell Oil Terminal. The maximum apparent LNAPL thickness of 4.01 feet was observed at the monitoring well MW-02. Analysis of the product from MW-02 showed gasoline- (416,000 mg/kg) and diesel-range (627,000 mg/kg) organic hydrocarbons. The groundwater data for gasoline- and diesel-range petroleum hydrocarbons showed several locations with significant contaminant concentrations in and around the former Northwest Oil Company tank farm. These facts clearly refute Time Oil counsel's assertion that, "There is no 'evidence' of a release at the Northwest Oil terminal's interim location north of the slip," see Footnote 141.

The former Northwest Oil Company tank farm was the sole activity in the southern

<sup>133</sup> OREGONSHIP, Pg 125.

<sup>134 3/1/06</sup> Memorandum, Attachment A, Pg A-25.

<sup>135 3/1/06</sup> Memorandum, Attachment A, these copies are portions of Figures A-6, A-7, A-9 and A-10 for the Southern Portion of the PEO Site.

<sup>136</sup> 3/1/06 Memorandum, Attachment A, Pg A-32

portion of the PEO Site that involved the handling or storage of substantial amounts of petroleum hydrocarbons; and, the groundwater plume coincides with the tank farm's footprint. This former tank farm is the most plausible source for the subsurface contamination in this portion of the PEO Site. DEQ recognized the probable role of the former tank site in its ECSI database summary for the PEO Site, concluding that petroleum hydrocarbon contamination in this portion of the Site "appears to be from historic site operations." <sup>137</sup>

The facts presented above clearly points towards the former operations the Northwest Oil Corporation's tank farm on the southwest corner of the PEO Site as the likely sources of releases of gasoline and diesel to the soil and groundwater in the southern portion of the PEO Site.

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 $<sup>137\</sup>quad 3/1/06$  Memorandum, Attachment A, Pg A-33,  $\it see~also$  ESCI Site 2013, Pgs 1-2.

# V. MANAGEMENT OF TANK SLUDGES AT TIME OIL TERMINALS AND API'S RECOMMENDED PRACTICES FOR CLEANING PETROELUM STORAGE TANKS

### Petroleum Storage "Tank Bottoms"/Sludges

As noted above, the DEQ has requested information from Time Oil regarding its historic operations and maintenance practices for the Northwest and Bell Oil terminals. It has also requested information on how Time Oil has historically managed the "tank bottoms" or sludges that periodically accumulated in the ASTs and that had to be removed from the tanks to allow the ongoing usage of those ASTs. To the best of our knowledge, Time Oil has yet to provide DEQ the requested information. However, documentation is available that sheds light on this subject.

In 1998, Time Oil was involved in a dispute with its insurance carrier, Lloyds of London, some of which related to the pentachlorophenol contamination at the Northwest Terminal property and Time Oil's contract with Koppers for Time Oil employees to operate a liquid pentachlorophenol formulation process at the Northwest Terminal. As part of that dispute, litigation ensued. Depositions were taken of Time Oil personnel regarding the historic tank farm operations at the Northwest and Bell Oil Terminals. Given that Time Oil was apparently seeking insurance coverage for the cost of remediating the discovered contamination at the Northwest Terminal from its insurance carrier, we should be able to rely on the accuracy of the statements made by the Time Oil employees. Those relevant depositions included:

Mr. Neil J. Gallagher, Time Oil's Northwest Terminal Superintendent from 1957-1985:<sup>139</sup>

Mr. Neil E. Wallis, Time Oil's Northwest Terminal Manager and Terminal Operations Manager from 1979 through at least 1988;<sup>140</sup> and Mr. Jonathan D. Steidl, Vice President Time Oil.<sup>141</sup>

In addition to the information from Mr. Wallis discussed below, he was also deposed as a "fact witness" on "terminal operations."<sup>142</sup> That deposition was not made available to SIC; however, it should be available to DEQ by requesting it from Time Oil's records. Included at Appendix A is a disc containing PDF files of the depositions referenced in this White Paper.

<sup>138</sup> *Time Oil Co vs. Underwriters at Lloyd's London*, Superior Court State of Washington, County of Pierce, Case No 96-2-06023-8.

Neil J. Gallagher Deposition in *In The Matter of: Time Oil vs. Underwriters of Lloyds of London*, Volume 1, August 11, 1998, (hereinafter "Gallagher Depo"). There were two depositions taken that day and are cited to hereinafter as Depo #1 and Depo #2.

<sup>&</sup>lt;sup>140</sup> Neil Wallis Deposition *In The Matter of: Time Oil vs. Underwriters of Lloyds of London*, Volume 1, August 24, 1998 (hereinafter "Wallis Depo")

<sup>141</sup> Jonathan D. Streidl Deposition *In The Matter of: Time Oil vs. Underwriters of Lloyds of London*, Volume 1, August 19, 1998 (hereinafter "Streidl Depo")

<sup>142</sup> Wallis, Pg 5.

According to Mr. Gallagher, there were 21 tanks in the Northwest Terminal<sup>143</sup> and "six or seven tanks at the Bell Terminal."<sup>144</sup> Time Oil handled "anything that would be pumped. Gasolines, diesel, stove oil, liquid fertilizer, Lignon liquor from the Boise Cascade Company. Valvoline from both \_\_\_\_\_ (sic) and lube oil from Valvoline and Pennzoil. Toluene, xylene, jet fuel."<sup>145</sup>

Mr. Gallagher said that once a tank got a number it kept that number. The first two digits signified the capacity of the tank in thousands of barrels; for example, Tank 80014 was 80,000 barrels, Tank 55021 was a 55,000 barrels and Tank 9510 would be 9500 barrels. The volume of a barrel of petroleum is 42 gallons. An example of tank size is a 20,000 barrel (840,000 gallon tank), which was approximately 50 feet across and 30-40 feet high. The tanks were generally placed on gravel or asphalt foundation. The tanks were operated to keep the tank bottoms at less than "eight inches" in depth; thereby preventing the sludges from interfering with the tanks' pump systems for transferring product. Figure WP-2<sup>151</sup> contains the tank identification numbers for each of the tanks at the Northwest and Bell Oil Terminals.

Beginning in 1957, one of Mr. Gallagher's responsibilities was cleaning tanks and removing the sludge that collected in the tank bottoms. He described the tank bottoms as sludge, a "sort of a slushy mixture of crude that you get in the bottom of tanks from the ships that pump in [product] and water" which included "petroleum sediment." 152

In describing how tank bottoms were removed and the tanks cleaned, Mr. Gallagher said there were times when he and other would take the manhole covers off of the sides of the tanks, aerate the tanks and then go inside the tanks and squeegee or clean the bottom of the tanks. This included digging a hole and placing the tank bottom sludges into the hole. He said the sludge was "kicked out the manhole or pumped out the manhole. Anything with lead in it, we dug a hole. I can't remember the dimensions of it, but they had to be so deep, and you put all the sludge from the leaded tanks in that hole and covered it up." Leaded gasoline sludges were buried because of their propensity to combust and explode when exposed to the atmosphere, causing a significant fire hazard. Burying the tank bottom sludges kept them from contact with the atmosphere.

<sup>143</sup> Gallagher Depo #2, Pg 12.

<sup>144</sup> Gallagher Depo #2, Pg 12.

<sup>145</sup> Gallagher Depo #2, Pg 42.

<sup>146</sup> Gallagher Depo #1, Pg 67-68.

<sup>147</sup> Gallagher Depo #2, Pg 100.

<sup>148</sup> Gallagher Depo #1, Pg 18.

<sup>149</sup> Gallagher Depo #1, Pg 17.

<sup>150</sup> Gallagher Depo #2, Pg 101.

<sup>151</sup> See Footnote 31.

<sup>152</sup> Gallagher Depo #1, Pg 16 and Depo #2, Pgs 101-102.

<sup>153</sup> Gallagher Depo #2, Pg 101.

<sup>154</sup> Gallagher Depo #2, Pgs 101-102.

<sup>155</sup> Gallagher Depo #1, Pg 15 and Depo #2, Pgs 101-102.

It should be remembered that unleaded gasoline was first introduced in approximately 1975; therefore, prior to that time (from at least the early 1920s) most gasoline products contained lead. Lead was used primarily to boost octane levels. 156 The average lead content was 2-3 grams per gallon in 1973.157

For the non-leaded gasoline the tank bottoms were pumped onto the surface of the ground.<sup>158</sup> For regular gasoline, "If there was any residue or anything left in the tank, we pumped that to another tank and the cleaning went out on the ground."159 This work included squeegeeing the bottom of the tanks. 160 Although Mr. Gallagher did not recall the dimensions of the holes that were dug he said they were dug in the "tank farm area."161

As discussed more fully below, it was the industry's recommended standard practice to dispose of tank bottom sludges into the ground within the tank farm area. This practice continued until the late 1970s or early 1980s when industry standards changed. Mr. Gallagher described this change as "the whole oil industry [was] starting to do a better job of cleaning up the ground around their tanks and whatever they put in the ground."162 Mr. Gallagher admitted that this "area of the ground in the tank farm was also sandy and it allowed any [spilled] liquids to percolate" 163 into the soil. He said that this ability of the soil to absorb spills is what was wanted for tank farms in the pre-1970s era and it was "standard operating practice" 164 to utilize the tank farms soils to dispose/absorb spills and releases. "It was the general practice in all the oil companies, and that's the way it went."165

Mr. Gallagher's comments that it was the standard practice of the industry to dump tank bottom sludge onto the surface of the ground or bury it in holes within the tank farm are confirmed by a review of the American Petroleum Institutes (API) published manuals presenting recommended industry practices for cleaning petroleum storage tanks from 1931 through June 2001.

To ascertain industry practice, we have reviewed the following API Manuals:

August 1931, API Manual on Cleaning Petroleum Storage Tanks, API Accident Prevention Manual No. 1, First Edition

March 1941, API Manual on Cleaning Petroleum Storage Tanks: CLEANING PETROLEUM STORAGE TANKS, Section A - Crude Oil and Unfinished Products and CLEANING PETROLEUM STORAGE TANKS, Section B - Gasoline.

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156 EPA Press Release, dated January 29, 1996, "EPA Takes Final Step in Phaseout of Leaded Gasoline
158 Gallagher Depo #2, Pg 102.
159 Gallagher Depo #1, Pg 15.
160 Gallagher Depo #1, Pg 15.
161 Gallagher Depo #1, Pg 16.
^{162}\, Gallagher Depo #Pgs 33-34 and Depo #2, Pg 101-102.
163 Gallagher Depo #2, Pg 103.
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<sup>164</sup> Ibid

<sup>165</sup> Gallagher Depo #2, Pg 157-158.

1950 API Manual on Cleaning Petroleum Storage Tanks: Section B - Gasoline Tanks

1955 API Manual on Cleaning Petroleum Storage Tanks: Section A-Crude-Oil and Unfurnished-Products Tanks and Section B-Petroleum Storage Tanks

1968 API RECOMMENDED PRACTICE FOR CLEANING PETROLEUM STORAGE TANKS (API RP 2015, First Edition, September 1968)

May 1975 API Publication 2015A: A Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning – A Supplement API RP 2015 Cleaning Petroleum Tanks (First Edition)

June 1982 API Publication 2015A: Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning (Second Edition, Supplement to API Publication 2015)

August 2001 ANSI/API Publication 2015-2001: Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks (Sixth Edition)

August 2001 ANSI/API Publication 2016: Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks (First Edition)

A disc containing PDF copies of each of these API Manuals is enclosed at Appendix A.

Typical of API's recommendations during the 1931-1982 time periods, is the following excerpt from API's 1955 *Manual on Cleaning Petroleum Storage Tanks: Section B-Gasoline Tanks*:

#### Disposal of Sludge and Sediment

**Paragraph 39.** "Sludge and sediment from tanks which have contained gasoline to which tetraethyl lead has been added are dangerous to handle, even after they have been taken out of the tank (see Par. 9). These should be kept wet, and **they should be buried promptly in a place where they will not be uncovered later." (Emphasis added, pg. 9)** 

Paragraph 40. "Depending upon the construction of the tank and the number of openings, sludge may be removed by various methods, or by a combination of methods. Possibly the simplest is to sweep or wash the sludge into piles, shovel it into buckets, and remove it from the tank. Thereupon the tank should be swept and then be washed down with a hose. This procedure may be followed by the use of an absorbent, such as sawdust, spent clay, or rags to absorb any remaining moisture. This absorbent material should then be removed from the tank and disposed of along with the sludge. If the tank has contained any leaded gasoline, these materials should be disposed of in the manner described in Par. 39. If side plates are removed from the tank, or if the tank has floor-level cleanout holes, much of the sludge may be removed by flushing with high-pressure water. If such openings do not exist, pumps of the self-priming type, or steam-operated or water-operated ejectors may be used to advantage. Any method of removing residual material from the tank which reduces to a minimum the time men spend in the tank contributes to the safety of the tank-cleaning operations. (Emphasis added, pg. 9)

To see how much times have changed, we refer the reader to the photos on pages 9-11 API's 1931 Manual and page 10 of the 1942 Gasoline Tanks Cleaning Manual, *see* Attachment A to the White Paper.

In 1982, the API Publication 2015A: Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning (Second Edition, Supplement to API Publication 2015) states:

#### 5.2 Methods of Disposal

"In the past, two methods have commonly been used to dispose of sludge from tanks used to store leaded gasoline, namely, burying and weathering. For environmental reasons, disposal by burying has lost favor to disposal by weathering in recent years. Thermal methods (which are not covered in this publication) are also effective in reducing the organic lead portion of the sludge to inorganic lead but are not commonly used because incineration equipment is not always available.

More recently, the U.S. Environmental Protection Agency (EPA) has identified "tank bottoms (leaded)" from the petroleum refining and industry as a toxic waste that requires a special handling under the Resource Conservation and Recovery Act (RCRA; 40 CFR, Parts 260-265)." (Emphasis added)

...

#### 5.2.2 DISPOSAL BY WEATHERING

"The applicable state and federal regulations should be reviewed before the weathering procedure is implemented. Where permitted by law, sludge may be disposed of by weathering. This method is considered to be safe, effective, and economical. Laboratory tests show that when organic lead compounds in sludge are exposed to the elements, they will decompose to inorganic lead compounds. Laboratory and field tests indicate that when the procedures outlined in the prescribed method have been followed, there have been no air, soil or water contamination problems. The reasons for this are as follows:

- "1. The total quantity of organic lead in a sludge weathering bed is small. Initial concentrations rarely exceed the normal range of 0.1- 0.4 pounds of organic lead per ton of sludge.
- "2. The amount of organic lead exposed to the atmosphere at the surface of the weathering bed is very small. Lead-in-air tests taken directly above or immediately downwind of the weathering bed indicate that lead-in-air concentrations are low. This indicates that the atmosphere in the area ceases to be an occupational hazard as soon as the sludge is spread.
- "3. Organic lead compounds are dissolved and held in the liquid hydrocarbon fraction of the sludge and do not migrate into the soil or groundwater." (Emphasis added)

Given both Time Oil's and the petroleum industry's long-held practice of disposing of tank bottoms and sludges in pits dug on tank farm property and for non-leaded gasoline, disposing of tank bottom directly onto the surface of the ground, it is appropriate to presume that a voluminous amount of tank bottoms were released to the environment by these practices.

#### **Potential Volume Of Tank Sludges**

A conservative estimate of the amount of sludge generated at the Bell Oil Terminal between its construction in 1953 and 1973 was calculated using the properties of a 20,000-barrel tank. As described by Mr. Gallagher in his deposition, such a tank was approximately 50 feet across and 30-40 feet high. The tank could accumulate sludge to a depth of eight (8) inches before it caused problems with the tank's product pumping system, *see* footnote 162 & 163 above.

The formula for the calculation is as follows:

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(\pi) (the radius of the tank)<sup>2</sup> (height of the sludge) = cubic feet of sludge. (Cubic feet of sludge) (7.48 gallons per cubic foot) = gallons of sludge.
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3.1416 (25 \text{ ft})^2 (0.66 \text{ ft}) = 1,295.91 \text{ ft}^3 \text{ of sludge}
1,295.91 \text{ ft}^3 (7.48 \text{ gallons/ft}^3) = 9,693.41 \text{ gallons of sludge}.
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The volume of the accumulated eight inches of sludge is approximately 9,693 gallons. This is approximately 1.15% of the tank's volume [20,000 barrels x 42-gallon/barrel $^{166}$  = 840,000 gallons, 9,693 gallons /840,000 gallons = 1.15%.]

Assuming this volume percentage is roughly equivalent for all tanks, the combined capacity of the Bell Terminal tanks with 12.7 million gallons of storage would periodically generate 146,050 gallons of tank bottom sludge [12,700,000 gallons x 1.15% = 146,050 gallons of sludge].

Using a conservative assumption that the tank bottoms at Bell Terminal were cleaned only once every five years during the 20-year period between 1953 and 1973, the amount of sludge dumped or buried on the Bell Oil terminal property and thereby being released to the environment would exceed 584,000 gallons of sludge. In all likelihood, for active tank farms such as Time Oil's, the tank bottoms were cleaned out more often than once every five years.

The volume of tank bottoms being released at the Northwest Terminal from the 1940s through the mid-70s (a 30-year period) would be significantly larger. Based upon the tank volumes shown on WP-2, the capacity of the Time Oil NW Terminal is approximately 442,800 barrels or 18.6 million gallons. Assuming one cleaning per tank every five years this would generate 213,900 gallons of sludge. Over a 30-year time period, this would amount to 1,283,400 gallons of tank bottom sludge. The Northwest Terminal has operated since 1944, over 60 years and the Bell Oil Terminal operated from 1953 until 2000, a period of 47 years. Using these conservative estimates, it is estimated that in excess of 1.75 million gallons of tank bottom sludges may have been released from these two terminals since they began operation.

Given Time Oil's historic sludge disposal practices and the petroleum product releases that reportedly occurred with the transite piping system (discussed below); we were concerned with the both quality and the interpretation of the Bell Oil Terminal-related data presented in Time Oil's *Phase II RI Report*. Accordingly, we asked Gradient to review the existing Bell Terminal and PEO Site data to evaluate the technical validity of the data interpretations presented in the Time Oil report, to identify any significant gaps in the data collected to date and to assess whether the data indicate that gasoline and diesel contamination is migrating from the Bell Oil Terminal onto the PEO Site.

<sup>166</sup> See Footnote 159.

As discussed above, the data interpretations presented in *Time Oil's Phase III RI Report* are technically flawed and significant data gaps exist. Further, a review of all the existing data indicates a significant contributory role for the Bell Oil Terminal in the gasoline and diesel contamination observed at the PEO Site. Gradient's findings on these issues were submitted to DEQ on September 10, 2004, in the Memorandum *Comments on Time Oil's Phase III Remedial Investigation Report*; see 9/10/04 Appendix.

Gradient found that the potential contaminant sources at the Bell Oil Terminal were inadequately characterized, thus hindering informed decision-making as to the scope and nature of any remedial actions at the PEO Site. Of particular concern was Time Oil's misleading data presentation that results in "erroneous conclusions ...regarding the sources and disposition" of the contaminant materials. As noted by Gradient:

For example, figures and text presented in the [draft] Phase III RI report indicate that petroleum hydrocarbons are present in three separate groundwater plumes beneath the Bell Terminal facility, with differing sources (*e.g.*, Figures 7-33 and 7-34 in the Phase III RI report). In a number of cases, the lines marking the "edge" of a plume are arbitrarily drawn and are not supported by the underlying numerical concentrations. The presentation and discussion of the groundwater data also fails to address important contextual information necessary for appropriate data interpretation. For example, such contextual information includes consideration of technical factors influencing the numerical validity of quantitative measurements of TPH concentrations in groundwater (*e.g.*, whether the sample is from a develop monitoring well or a temporary well point). Moreover, the perspective on the distribution of petroleum hydrocarbons in groundwater (particularly for diesel) is skewed by the inclusion of inappropriate data. The data presentation in the Phase III RI also fails to consider chromatographic evidence linking the materials observed at various locations on and downgradient of the Bell Terminal facility.

### As shown in Figure WP-9:

"[T]he available data do not support a finding of three distinct plumes. Instead, the data indicate the petroleum hydrocarbons are more broadly present in the groundwater extending under most of the central and western portion of the Bell Terminal facility. ... Specifically, the results for the Bell Terminal facility show elevated petroleum hydrocarbon concentrations in the central portion of the site extending to the southwest and western property boundary." "[T]he data indicate that a single diffuse plume extends from the central portion of the Bell Terminal facility towards the west and southwest, consistent with the prevailing groundwater flow direction and consistent with the pattern of contamination observed on Time Oil's Main Tank Farm.

<sup>167 9/10/04</sup> Appendix, Pg 2.

<sup>168 9/10/04</sup> Appendix, Pg 3.

<sup>169 9/10/04</sup> Appendix, Pg 3.

<sup>170 9/10/04</sup> Appendix, Pgs 3-4.

<sup>171 9/10/04</sup> Appendix, Pg 6.

"Examination of the available chromatographic data for the Bell Terminal and PEO sites also indicates that the signature of the downgradient diesel contamination observed on the PEO property (particularly at location MW-04) is consistent with the source materials present in numerous samples on the Bell Terminal property. Moreover, the chromatograms for the Bell Terminal locations also indicate the presence of petroleum product at these locations (rather than the presence of only dissolved petroleum hydrocarbon constituents). These findings indicate sources for the petroleum hydrocarbon materials at these locations that are above or upgradient of the observed locations. The affected locations are shown in Figure 3" 172 (presented herein in Figure WP-6).

Photos 8-15 show soil staining with in the Bell Oil Terminal over a sixteen year period (1961-1977), *see* the photo captions for a discussion of the staining patterns.

According to Time Oil employees' testimony, during this period Bell Oil Terminal employees disposed of tank sludges onto the surface of the tank farm's soil or into pits dug inside the tank farm enclosure. These tank bottom disposal practices, coupled with the inevitable release of product during the 1943 relocation of the of former Northwest Oil Company tank farm and known spills and releases at the Time Oil Terminals (discussed below) are the most plausible sources of the residual petroleum product contamination on the PEO Site and the Bell Oil Terminal.

<sup>172 9/10/04</sup> Appendix, Pg 6.

#### VI. KNOWN SPILLS AND RELEASES AT THE TIME OIL FACILITIES

During the course of the 1998 depositions, the Time Oil employees were questioned about past spills and releases at the terminals. Their testimony sheds significant light on past operational practices at the oil terminals and discloses several voluminous releases of hazardous substances to the environment that may not have been disclosed in the Landau's *Phase III Remedial Investigation Report*.

### Time Oil's SPCC Plan and Subsurface Transite Piping System

As is required by the Clean Water Act, Section 301 (b) (1), all oil storage tank facilities must have a Spill Control & Countermeasures Plan (SPCC Plan), and Time Oil had a SPCC Plan. In 1974, Time Oil's Plan for the Northwest Terminal tank farm, which included the Bell Oil Terminal, used soil absorption as the planned method for controlling spills. The SPCC stated, "Diked storage area has no valves to drain the area. The tanks are surrounded by concrete and earthen dike. Rain water is absorbed in the sandy soil inside the dike." Product absorbed into soil in the event of a spill will be contained by 800 feet of sea curtain oil boom placed along the shoreline." 175

Based upon the above, it appears that Time Oil used on-site soil absorption to contain spills or releases within the tank farm; and, if absorption failed, a sea curtain oil boom would be placed along the shoreline of the Willamette River to contain surface water contamination. There was no apparent concern for potential groundwater contamination.

Between December 7-11, 1987, Mr. Wallis, of Time Oil Terminal operations, reported in a Memo (reportedly Exhibit 534)<sup>176</sup> to Jock Streidl, Vice President of Time Oil, regarding the breaks in the concrete or Transite piping that ran beneath the tank farms. He wrote "over the years we have found several broken tiles (pipes) within the dyked (sic) compound allowing petroleum product & water to leak to the subsurface level." The transite piping system was part of the Time Oil SPCC system. Reportedly, drawings existed of the transite piping system. The piping system was "very extensive. I think there were sections and legs going to virtually every tank in the tank farm," Mr. Wallis commented. These concrete pipe segments were 3-4 feet long and there were "many, many feet of them in this tank farm." Once a break in the transite piping was detected, the pipe segment would be replaced.

<sup>181</sup> Gallagher Depo #2, Pgs 170-174.

<sup>174</sup> Gallagher Depo #2, Pg 172-173.

<sup>175</sup> Gallagher Depo #2, Pg 173.

<sup>176</sup> Wallis Depo, Pg 193.

<sup>177</sup> Wallis Depo, Pg 193.

<sup>178</sup> Wallis Depo, Pg 119.

<sup>179</sup> Wallis Depo, Pg 120.

<sup>180</sup> Wallis Depo, Pg 120.

<sup>&</sup>lt;sup>181</sup> Wallis Depo, Pg 118-119

<sup>182</sup> Wallis Depo, Pg 119.

Leaks in the system were detected "by water stains or product stains that would surface on the tank farm floor." However, "[b]ecause of the sandy soil conditions in the tank farm, these leaks do not surface immediately." Mr. Wallis said, "[T]he St John's facility was built on river dredge spoils. It's very sandy soil ... things want to drain down instead of surfacing up ... If something surfaces at St. John's there's going to be a lot of it before you see it." The petroleum product involved in these releases from the concrete or transite piping was "gasoline or diesel." The transite system was only used when draining water out of a tank. 187

The surfacing or wet spots<sup>188</sup> primarily occurred in those areas of the tank farm where the pipe was fairly shallow, e.g., less than 24" deep.<sup>189</sup> For those areas where the pipe was 24-30 inches deep the leaks in "some of these areas [might] never surface. You could have a leak forever and not know it,"<sup>190</sup> said Mr. Willis. "At St. John's, the sand there is ... you don't see any stains, I mean ... you may see a stain today, but I don't care what it was tomorrow, you see nothing,"<sup>191</sup> he noted. The discoloration did not last for an extended period of time.<sup>192</sup> Mr. Wallis stated, "[b]ecause of the sandy soil conditions in the tank farm, these leaks do not surface immediately. I believe the potential exists that a leak may go undetected indefinitely."<sup>193</sup>

In discussing Exhibit 534, presumably a drawing of the underground transite piping system, Mr. Wallis is quoted as having said, "Over the years we have found several broken tiles (pipes) within the diked compound, allowing petroleum & water to leak at a subsurface level."<sup>194</sup> Mr. Wallis said that this occurred on "several occasions."<sup>195</sup> Regarding these broken transite tiles that leaked, Mr. Wallis noted there were "three or four, maybe a half a dozen over a two- or three-or four-year period."<sup>196</sup>

Although Mr. Wallis never went looking for the deeper broken tiles, he was concerned that one of the deeper tiles was broken and was causing contamination.<sup>197</sup> Most of the broken areas of the pipe were at the joints of the "three foot long" segments.<sup>198</sup> Mr. Wallis' concerns were significant enough that the very extensive transite system was

Wallis Depo, Pg 119.

<sup>184</sup> Wallis Depo, Pg 121.

Wallis Depo, Pg 122.

<sup>&</sup>lt;sup>186</sup> Wallis Depo, Pgs 174-175.

<sup>187</sup> Wallis Depo, Pg 174.

<sup>188</sup> Wallis Depo, Pg 176.

<sup>&</sup>lt;sup>189</sup> Wallis Depo, Pg 174-176.

<sup>190</sup> Wallis Depo, Pg 175

<sup>191</sup> Wallis Depo, Pg 176

Wallis Depo, Pg 176.

<sup>&</sup>lt;sup>193</sup> Wallis Depo, Pg 176-177.

<sup>194</sup> Wallis Depo, Pg 193.

<sup>195</sup> Wallis Depo, Pg 194.

<sup>196</sup> Wallis Depo, Pg 210.

<sup>197</sup> Wallis Depo, Pg 210.

<sup>&</sup>lt;sup>198</sup> Wallis Depo, Pg 210-211.

abandoned in place rather than repaired.<sup>199</sup> "The extensive network of the Transite piping was replaced with a steel piping small network that was ... more strategically located,"<sup>200</sup> he said. The replacement occurred prior to Mr. Wallis' leaving, possibly the late 1980s.<sup>201</sup>

#### **Crosby & Overton Operations**

Crosby & Overton was a lessee of Time Oil for 15 years from 1974 to 1989.<sup>202</sup> Mr. Gallagher said that Crosby & Overton was a company that removed waste from tank farms, cleaned tanks, and would pick up any liquid that companies wanted removed.<sup>203</sup> "They had done a lot of tank cleaning, and they would suck everything out. They had done a lot of pumping and – anything that somebody needed cleaned up and if it was liquid, Crosby & Overton picked it up."<sup>204</sup> They pumped these wastes into Time Oil tanks.<sup>205</sup>

In describing Crosby & Overton operations, Mr. Wallis said that Crosby & Overton would collect "the various sludge and bilge and whatever one would gather from storage tanks was put into these two tanks at Time Oil Company. ... They did all types of tank cleaning, but there were hydrocarbon cleanings and washings and rinsings, and that type of thing would be stored at Time Oil." 206

Crosby & Overton used the Bell Oil Terminal office "after no one else was using the office." <sup>207</sup> In addition, they stored their trucks at the Bell Oil Terminal and used a little service tank<sup>208</sup> at the Bell Oil Terminal to fuel their trucks.<sup>209</sup> Crosby & Overton rented a 10,000-barrel (420,000 gallon) tank from Time Oil, Tank **10002.**<sup>210</sup> According to Mr. Gallagher, they were not a good tenant and ran a "very sloppy operation." <sup>211</sup>

During his deposition Mr. Gallagher marked an Exhibit for the Time Oil Terminals where Crosby & Overton operated. In the Bell Terminal area he marked a location as the "Crosby & Overton sludge dump" and said that "they'd run their trucks down through there when they'd come back and wanted to empty them out completely, and they had run down through there and just let it go."<sup>212</sup> "[T]hey were dumping it on the ground and there were sewer lines and whatever in the area."<sup>213</sup> "It seemed like they would come in with their trucks, and if they had a little bit retained in the bottom of them they would

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199 Wallis Depo, Pg 211; see also, Pgs 120-121.
200 Wallis Depo, Pg 120-121.
201 Wallis Depo, Pg 121.
202 Landau Final Phase III Report, Pg 2-10.
203 Gallagher Depo #2, Pg 50-51.
204 Gallagher Depo #2, Pg 50.
205 Gallagher Depo #2, Pg 51.
206 Wallis Depo, Pg 85.
207 Gallagher Depo #1, Pg 46
208 Gallagher Depo #2, Pg 51.
209 Gallagher Depo #1, Pg 46; see also, Gallagher Depo #2, Pg 51.
210 Gallagher Depo #1, Pgs 46-47, Pgs 110-111.
211 Gallagher Depo #1, Pg 48 and Depo #2, Pg 51-52.
212 Gallagher Depo #1, Pg 93.
213 Gallagher Depo #1, Pg 49.
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open up their valves and just drive around the area and let it flow out."214 When asked if this practice was similar to that involved in oiling a road, Mr. Gallagher said, "It wasn't spread, but it was a single stream coming out."215 Mr. Gallagher put a stop to the unauthorized dumping.216

On August 8, 1988, Bicknell (possibly the Loss Control officer [loss control meaning product, petroleum losses 217 for Time Oil) wrote a Memo to R.D. Abendroth, Robert Adendroth, Time Oil senior management, and Mr. Wallis, Time Oil Terminal operations, referred to in the deposition as Exhibit 531.<sup>218</sup> Mr. Bicknell discussed the results of his inspection of the Northwest Terminal, including the Crosby & Overton area(s). According to Mr. Wallis those inspections usually took 3-5 days. Mr. Bicknell mentioned "a large scaled galding weep [or stain]" from Tank 10002220, a Crosby & Overton tank [see Figure WP-2] that was "weeping ... unknown contents of the tank upon the ground."221 Mr. Wallis, the terminal operator, had no memory of the weep or if the tank was ever repaired.<sup>222</sup>

Mr. Bicknell's Memo reportedly describes an area west of Tank 10002 with a "loading rack"223 as "deplorable."224 Further, he wrote "Oily rags, debris and spilled chemicals are evident over the entire area."225 "The soil in this area has been contaminated to a great degree and should the chemical or chemicals involved prove to be hazardous, cleanup costs could be considerable."226

Reportedly, Crosby & Overton used two tanks behind the wood treating area, possibly Tanks 10002 and 5006. They used the area from the mid-60s until the early 80s according to Mr. Gallagher.<sup>227</sup> Discussing Tanks 10002 and 5006T, Mr. Wallis said, "At those areas of offload at the valves there was evidence of ... spills or leakage from the valve."228 Mr. Wallis said there was "an apparent overflow at one point because there was [sic] stains down the side of the tank, I think it was the 10,000 barrel tank."229 This occurred in the summer-fall 1979 time period.<sup>230</sup>

<sup>214</sup> Gallagher Depo #1, Pg 48.

<sup>215</sup> Gallagher Depo #2, Pg 112.

<sup>&</sup>lt;sup>216</sup> Gallagher Depo #1, Pg 49 and Depo #2, Pg 113.

<sup>217</sup> Wallis Depo, Pg 96.

<sup>218</sup> Wallis Depo, Pgs 95-96.

<sup>219</sup> Wallis Depo, Pg 96.

<sup>220</sup> Wallis Depo, Pg 98.

<sup>221</sup> Wallis Depo, Pg 97.

<sup>222</sup> Wallis Depo, Pg 97.

<sup>223</sup> Wallis Depo, Pg 98

<sup>224</sup> Wallis Depo, Pgs 99-100.

<sup>225</sup> Wallis Depo, Pg 100.

<sup>226</sup> Wallis Depo, Pg 100.

<sup>227</sup> Gallagher Depo #1, Pg 45-46.

<sup>228</sup> Wallis Depo #1, Pg 78.

<sup>229</sup> Wallis Depo, Pg 78.

<sup>230</sup> Wallis Depo, Pg 78.

In 1983 there was a release from the Crosby & Overton tank near the wood-treating area, probably Tank 10002 (a 10,000-barrel tank, 420,000 gallon tank, *see* Footnote 223). Mr. Gallagher said Crosby & Overton pumped "so much sludge and what have you into the tank that they couldn't draw anything out anymore. It had filled up in there and overcome the suction line and they couldn't get anything out. So they decided to cut a hole in the side of the tank and do away with some of the stuff that was in there.<sup>231</sup>" Eventually the hole was large enough (at least six feet wide) that they were able to drive a small scoop tractor in and out of the tank.<sup>232</sup> As a result of cutting a hole, Mr. Gallagher said "[t]hey had that crud came out of the tank and then it was all over the area."<sup>233</sup> He estimated that the area of the spill was 100' x 50' by 3-4 inches deep.<sup>234</sup> On June 17, 1985, Mr. Robert Abendroth of Time Oil wrote H.R. Holliday regarding the Crosby & Overton lease. Item #2 of the Memo states that Crosby & Overton was to, "Clean-up ... contaminated (oil soaked) soil leading to a clean bill of health from EPA and Oregon DEQ."<sup>235</sup> As of 1998, thirteen years later, Mr. Wallis was not sure that "Crosby & Overton ever did any soil cleaning."<sup>236</sup>

The Time Oil employees' testimony causes one to believe that the extent of the Crosby & Overton operations were far greater than just the Northwest Terminal area discussed in Landau's Final Phase III RI Report as 'leased tank space [for two ASTs]<sup>237</sup> ... for storage of waste oils" and a "truck washing trough" at the Bell Oil Terminal. Further, based upon the Time Oil employees' testimony and as a direct result of Crosby & Overton's materials management, spillage and disposal practices, the residual soil and/or groundwater contamination, from a potentially wide variety of pumpable fluids, may be significantly greater and more extensive than previously disclosed.

#### **Other Known Tank Releases**

In the course of their depositions the Time Oil employees disclosed several other releases that had occurred at the oil terminals including:

 One tank (possibly Tank 16804 or 29508) stored crude sulfate of turpentine for the Glidden Paint Co. for four or five years. The solution was acidic and Time Oil added ammonia to the tank to keep the pH up and to keep the crude sulfate solution from eating the inside of that tank.<sup>240</sup> Later on, this tank ruptured after Time Oil placed diesel fuel into the tank.<sup>241</sup>

<sup>231</sup> Gallagher Depo #1, Pg 118-119.

<sup>232</sup> Gallagher Depo #1, Pg 118-119.

<sup>233</sup> Gallagher Depo #1, Pg 120.

<sup>234</sup> Gallagher Depo #1, Pg 120.

<sup>235</sup> Wallis Depo, Pgs 76-78

<sup>236</sup> Wallis Depo, Pg 88.

<sup>237</sup> Landau Phase III Rpt, Pg iii and 2-3.

<sup>238</sup> Landau Phase III RI Rpt, Pg ii sand 2-3.

<sup>239</sup> Landau Phase III Rpt, Pg 2-5.

<sup>240~</sup> Gallagher Depo #1, Pg 41.

<sup>241</sup> Gallagher Depo #1, Pgs 40-42.

On March 8, 1975, Tank 29508 (a diesel tank) ruptured.<sup>242</sup> It had previously stored crude sulfate of turpentine.<sup>243</sup> The 50 foot tall tank ruptured during offloading, at about the third or fourth seam up, which is about 30 feet high.<sup>244</sup> Its capacity was 29,000 barrels [1,218,000 gallons]. It was a little over "half full" when it broke.<sup>245</sup> Part of the tank's volume was offloaded to Tank 15002;<sup>246</sup> however, "a lot of product ended up [on the soil] down by Tank 5312,"247 where there was a low spot and another low spot by Tank 9509.<sup>248</sup> This spill involved "pretty near the whole tank farm." 249 By Mr. Gallagher's rough calculations approximately 70,000 gallons of diesel product were lost from this tank rupture.<sup>250</sup> John Denham (Time Oil's Environmental Services Department Manager) had people [presumably consultants] investigate the spill and dig holes to find the spilled product but they were unable to find any product. It was "their assessment that if diesel hit the ground it would go down into the ground."251 Mr. Gallagher, the Northwest Terminal Supervisor, stated that nothing else was done. The product "[w]ent into the ground somewhere and just took off. Wherever it went, I don't know."252 In the 1960s and '70s, it was the belief of Mr. Gallagher that any petroleum products that spilled on the ground did not cause any property damage or contamination or environmental harm.<sup>253</sup> During Mr. Gallagher's employment with Time Oil in Portland, which lasted from October 1957 through September 1985 (28 years),<sup>254</sup> there was not any soil excavation work to remove petroleum soil contamination from spills at the terminals.<sup>255</sup>

• On April 25, 1978 there was an estimated 6,944-gallon diesel release from a hole in the bottom of **Tank 11005.**<sup>256</sup> All that Mr. Gallagher remembered of this incident was going into the tank and having to weld up the bottom of the tank.<sup>257</sup> Mr. Streidl wrote a May 9, 1978 document (Exhibit 495) on his inspection of the tank because of the "hole in the floor of the tank."<sup>258</sup>

242 Gallagher Depo#1, Pg 95-96.

<sup>243</sup> Gallagher Depo #1, Pg 69.

<sup>244</sup> Gallagher Depo #1, Pg 70.

 $<sup>^{245}~</sup>$  Gallagher Depo #1, Pg 70 and Depo #2, Pg 46.

<sup>246</sup> Gallagher Depo #1, Pg 71-72.

<sup>247</sup> Gallagher Depo #1, Pg 72.

<sup>248</sup> Gallagher Depo #1, Pg 74.

<sup>249</sup> Gallagher Depo #1, Pg 74.

<sup>250</sup> Gallagher Depo #1, Pg 96 and Depo #2, Pg 46.

<sup>251</sup> Gallagher Depo #1, Pg 75

<sup>252</sup> Gallagher Depo #1, Pg 96-97.

<sup>253</sup> Gallagher Depo #1, Pgs 47-48.

<sup>254</sup> Gallagher Depo #1, Pgs 8.

<sup>255</sup> Gallagher Depo #1, pg 77.

<sup>256</sup> Gallagher Depo #1, Pg 97-98.

<sup>257</sup> Gallagher Depo, Pgs 98-99.

<sup>258</sup> Streidl Depo, Pgs 163,164.

- Tanks 20002 and 20003 (probably in the penta wood-treating area)<sup>259</sup> reportedly had leaks from the tanks' bottom in the 1970s. The bottoms were repaired by fiber glassing the bottoms.<sup>260</sup> There was no effort to cleanup the released product.<sup>261</sup>
- On September 11, 1969, there appears to have been a release of approximately 3,546 gallons of KB-3 product (a petrochemical)<sup>262</sup> in the wood-treating area.<sup>263</sup>
- There was a leak (possibly methanol) in **Tank 80014** from a hole in the tank floor in the late 1980's, possibly 1988.<sup>264</sup> Reportedly, there were no efforts made to clean up the release.<sup>265</sup>
- Mr. Wallis said there was a release from the bottom of an unidentified tank, associated with Exhibit 532, that wasn't discovered "until the tank was empty and we were doing an inspection on the floor of that tank when we found this hole. And we know that the tank had been used, know it had a hole in the floor, and from that deduced the fact that product had to be lost underneath the tank."266

Mr. Wallis also said there were leaks at the following tanks but did not provide much detail regarding the leaks:

Tank 38016, a gasoline release.<sup>267</sup>

Tank 4408, a caustic soda release. <sup>268</sup>

**Tank 29508** –a major diesel leak:<sup>269</sup> Mr. Wallis said he could still "see where the leak occurred because you can still see the repairs on it."<sup>270</sup>

Mr. Wallis said that he only considered releases larger than 2 gallons as "real releases." He noted that there were periodic releases from "flange leaks at various connections that you had to tighten bolts and replace a gasket." 272

• On July 19, 1969, Mr. Gallagher typed a Report on the "spill or overflow" of Toxisol from one of the tanks in the penta area. Toxisol was a solvent used to mix with the penta.<sup>273</sup> An August 28, 1969 letter from Koppers or Wood Treating

<sup>259</sup> Gallagher Depo #2, Pgs 64-65.

<sup>260</sup> Gallagher Depo, Pg 85.

<sup>261</sup> Gallagher Depo #2, Pg 65.

<sup>262</sup> Gallagher Depo, Pg 137.

<sup>263</sup> Gallagher Depo, Pgs 102-103.

Wallis Depo, Pg 129.

<sup>265</sup> Wallis Depo, Pg 130

<sup>266</sup> Wallis Depo, Pg 130.

<sup>267</sup> Wallis Depo, pg 133

<sup>268</sup> Wallis Depo, Pg 133

<sup>269</sup> Wallis Depo, Pg 133.

<sup>270</sup> Wallis Depo, Pg 135.

Wallis Depo, Pg 128.

Wallis Depo, Pg 128.

<sup>273</sup> Gallagher Depo #2, Pgs 151-152.

Chemicals discusses a 5,400 gallon release of 140 RTU of a 5% penta solution, which may have been the same spill.<sup>274</sup>

On May 29, 1971, John Denham, Time Oil's Environmental Services Manager, wrote regarding Tank 13001, which is not shown on Figure WP-2, "No means exist for prompt and safe disposal of spills at Tank 13001. Area is completely saturated."<sup>275</sup>

Although most of these releases occurred at the Time Oil's Northwest Terminal, it appears that as a general rule the same Time Oil personnel worked and/or managed both terminals. Therefore, we can reasonably expect to see similar unreported or underreported spills and releases at Bell Oil Terminal.

Mr. Gallagher testified that although he started work for Time Oil in October 1957 and worked there until September 1985,<sup>276</sup> during those 28 years he only took one course "with regard to environmental concerns."<sup>277</sup> That course was in "about 1975"<sup>278</sup> and was "about oil spills in the river."<sup>279</sup> Mr. Gallagher was the only employee from the Northwest Terminal to attend the course<sup>280</sup> and, according to Mr. Gallagher, the term "Northwest Terminal" includes both the Northwest and Bell Oil Terminals.<sup>281</sup>

Accordingly, Time Oil's apparent corporate philosophy of disregard towards environmental compliance would have been similar for both facilities, *see* the discussion below.

<sup>274</sup> Gallagher Depo #2, Pgs 154-155.

<sup>275</sup> Gallagher Depo #1, Pg 130-131.

<sup>276</sup> Gallagher Depo #1, Pg 8.

<sup>277</sup> Gallagher Depo #1, Pg 10.

<sup>278</sup> Gallagher Depo #1, Pg 12.

<sup>279</sup> Gallagher Depo #1, Pg 11.

<sup>280~</sup> Gallagher Depo #1, Pg 12.

<sup>281</sup> Gallagher Depo #1, Pg 12.

# VII. TIME OIL'S APPARENT DISREGARD FOR ENVIRONMENTAL COMPLIANCE AT THE OIL TERMINALS

In the course of both Mr. Gallagher's and Mr. Wallis' depositions, discussions arose regarding Time Oil Management's attitude toward recommended health and safety and environmental corrections at the Terminals from the Time Oil employee charged with this responsibility. These recommendations were received from Mr. John Denham (Time Oil's, Environmental Services Department Manager), who was hired in the early 1970s. Reportedly, Mr. Denham retired from Time Oil and was replaced by Joseph Sanzo. 283

Both Messrs. Gallagher and Wallis said that Mr. Denham was a very thorough, very observant and very honest man.<sup>284</sup> Mr. Wallis described Mr. Denham as, "a very thorough individual. He retired from the military, I believe, as a colonel. Well-spoken, well-written. Truly a gentleman. ... You know, he was very good at what he did.<sup>285</sup>" He gave "fair and accurate depictions of what was going on.<sup>286</sup>"

However, when Mr. Denham recommended corrections to existing problems that would cost Time Oil money, Time Oil Management instructed Mr. Gallagher to "just don't pay any attention to John Denham." The fact is, Time Oil Management didn't pay attention to Mr. Denham's reports, and many needed corrections went unaddressed over numerous inspection reports "they had the same [violations] over and over and over ... again" (explanatory bracket added) spanning a period of twelve years (1971-1983).289

While discussing the regulatory compliance problems that Time Oil employees operating the liquid pentachlorophenol formulation process at the Northwest terminal were encountering, Mr. Denham wrote an August 15, 1983 internal Time Oil Memo [Deposition Exhibit 473, also referred to as Exhibit 526]:<sup>290</sup>

"Due to TOC [Time Oil Company], ... long-term non-compliance with applicable regulations governing this particular operation, the company is now extremely vulnerable to fines and possible shutdowns of [the] entire terminal until corrective action in penta area is completed." <sup>291</sup>

"All it would take is one complaint, one call or one inspector to trigger such action. For this reason, 'clean-up' should be accomplished quietly and only the minimum number of people necessary should know of the matter, even after

<sup>&</sup>lt;sup>282</sup> Gallagher Depo#1, Pg 76 and Depo #2, Pg 57; see also, Streidl Depo, Pg 78.

<sup>283</sup> Gallagher Depo #1, Pg 76; see also, Streidl Depo, Pg 78.

 $<sup>^{284}\,</sup>$  Gallagher Depo #1, Pg 134-138 and Depo #2 Pg 143

<sup>&</sup>lt;sup>285</sup> Wallis Depo, Pg 55-56.

<sup>286</sup> Gallagher Depo #1, Pg 118, and Wallace Depo, Pg 169.

<sup>&</sup>lt;sup>287</sup> Gallagher Depo #1, Pgs 107 & 115.

<sup>288</sup> Gallagher Depo #2, Pgs 95-96.

<sup>289</sup> Gallagher Depo #1, Pgs 111-117.

<sup>290</sup> Gallagher Depo #1, Pg 114 and Depo #2, Pg 59;  $\it see~also$ , Wallis Depo, Pgs 54-58.

<sup>&</sup>lt;sup>291</sup> Gallagher Depo #1, Pgs 116-117 and Depo #2, Pg 60.

cleanup is finished. Because of the sensitivity, no Federal or State agency should be contacted by anyone at this time for anything. Kindly refer potential problem areas to me."292

Mr. Denham reportedly noted over 100 discrepancies or problems that existed throughout the terminal in that Memo.<sup>293</sup> One entry about the wood-treating area stated, "Ground area at end of pipeline is saturated with product at least 12 inches deep. Extent of condition unknown. Dirt removal and replacement needed."294 Note, this is the same soil that Mr. Wallis said you could "have a leak forever and not know it," see Footnotes 230-205. If the ground was fully saturated for at least 12 inches in depth, it begs the question, "How much material was actually release to cause that degree of saturation in that soil type?"

Mr. Wallis said that in 1979<sup>295</sup> he felt the wood-treating operation was a "sloppy operation"<sup>296</sup> and that soil "stains and ... free-floating liquid was ... really unacceptable."<sup>297</sup> He understood then that this liquid product that was "going on top of the soils in the wood-treating area would sink down in the soils."298 When asked to clarify what he meant by "sloppy operations", Mr. Wallis said, "Well, free-standing product on the ground indicates sloppiness to me. An installation, a permanent installation that has been in service for a number of years that was still using hoses [instead of the recommended hard plumbed piping to transferring product] is a sloppy operation."299

Mr. Gallagher admitted "the discrepancies stayed the same because Time Oil chose not to give [him] the money to fix the problems in this [wood treating] area of the terminal and other areas throughout the terminal.300" This occurred even though Mr. Denham had advised Time Oil Management seven (7) times over a twelve-year period of the needed corrections and they went unaddressed.301

Given the extended time periods over which the Northwest and Bell Oil Terminals operated and the nature of the products handled, a certain number of spills and releases were bound to occur and are to be expected. However, according to sworn depositional testimony of Time Oil employees, Time Oil Management's attitude and actions regarding known releases and recommended/needed facility corrections to prevent further contamination, as late as 1983, can appropriately be characterized as a knowing and conscious disregard toward environmental compliance.

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<sup>292</sup> Gallagher Depo #2, Pgs 60-61.
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<sup>293</sup> Gallagher Depo #2, Pg 96

Wallis Depo, Pg 63.

<sup>&</sup>lt;sup>295</sup> Wallis Depo, Pg 35.

<sup>296</sup> Wallis Depo, Pg 35-36.

<sup>297</sup> Wallis Depo, Pg 36.

<sup>298</sup> Wallis Depo, Pg 36.

<sup>299</sup> Wallis Depo, Pg 221-222, [Explanatory bracket added].

<sup>300~</sup> Gallagher Depo #2, Pg 97, [Explanatory brackets added].

<sup>301</sup> Wallis Depo, Pg 169-170.

#### VIII. SUMMARY

The Time Oil allegations against SIC, as to sources for the petroleum hydrocarbon contamination on the PEO property, from either the past actions of SIC or its tenants are groundless. The soil and groundwater diesel contamination potentially attributable to spill(s) or overfill(s) of the on-site emergency diesel AST fuel supply for the PEO generator is a minimal contributor to the overall contamination observed at the PEO Site. Similarly, the release of "some oil" from the 1973 breach of the abandoned Bell Oil Terminal pipeline on the PEO Site is insignificant, particularly in light of other more probable and substantially greater contaminant sources on the Bell Oil Terminal property.

By far, the most credible sources of the residual gasoline and diesel contamination of the PEO Site are the Time Oil and the former Northwest Oil Companies' oil terminal operation and management practices. These sources include: the former petroleum tank farm that was present at the southwest corner of the PEO Site between 1941and 1943; the surface disposal and/or burying of AST tank bottom sludges at both the Bell Oil and Northwest Oil Terminals that, by conservative estimate, released in excess of 1.75 million gallons of tank sludge to the environment; and the known spills and releases at the oil terminals, some of which involved tens of thousands of gallons of product. This latter information was disclosed in depositional testimony by Time Oil employees in Time Oil's 1998 lawsuit with Lloyds of London. This later material is environmental spill and release information that Time Oil had in its records and, according to the DEQ's administrative record for the oil terminals and the PEO Site, did not to disclose to the DEQ.

Given the limited number and size of releases Time Oil disclosed in Landau's *Phase III RI Report*, there appears to be an extensive history of unreported releases of gasoline, diesel and other hazardous substances from the terminals' storage tanks. Further, Time Oil utilized a SPCC Plan that was based upon using soil absorption, in known sandy soils, as the primary method of containing spills. The SPCC plan also used a transite underground piping system that was prone to leak and release undisclosed amounts of product to the sandy soils.

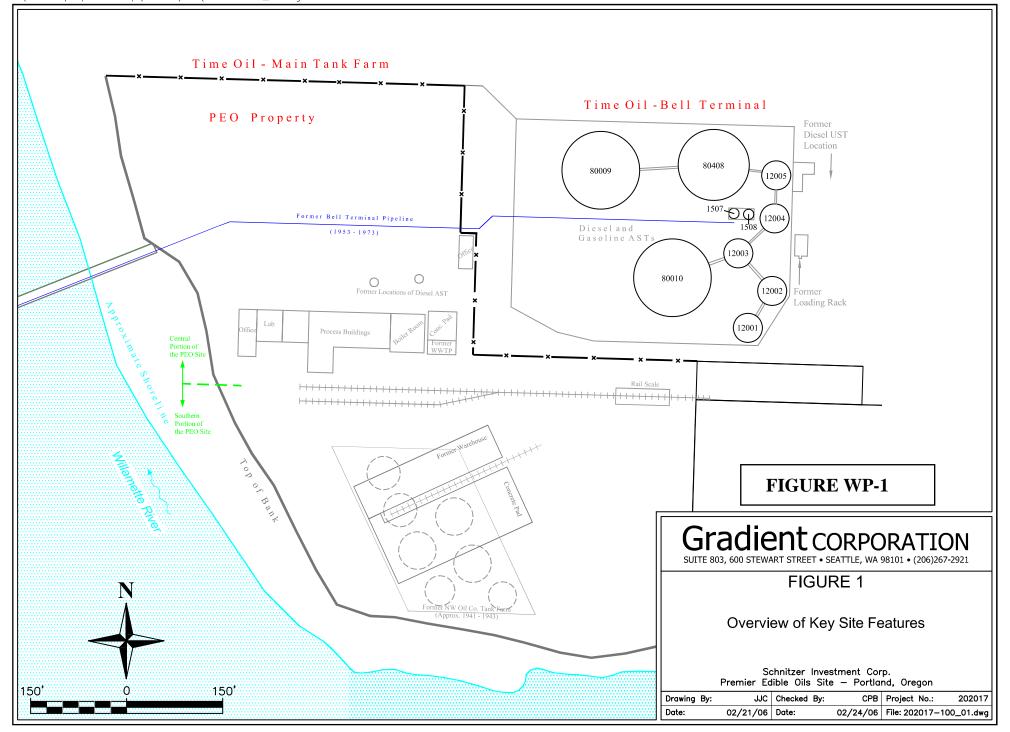
These ongoing sources of petroleum product releases were further combined with an established corporate philosophy of repeatedly ignoring documented and needed corrections to terminal facilities to prevent or minimize further releases. Time Oil's Management apparently held their corporate environmental manager in disdain and undermined his authority with oil terminal supervisory personnel. As indicated in the testimony of Time Oil employees, Management told the terminal supervisory personnel to disregard the environmental manager's warnings and actively withheld corporate funds required by the terminals to make the needed corrections to the facilities.

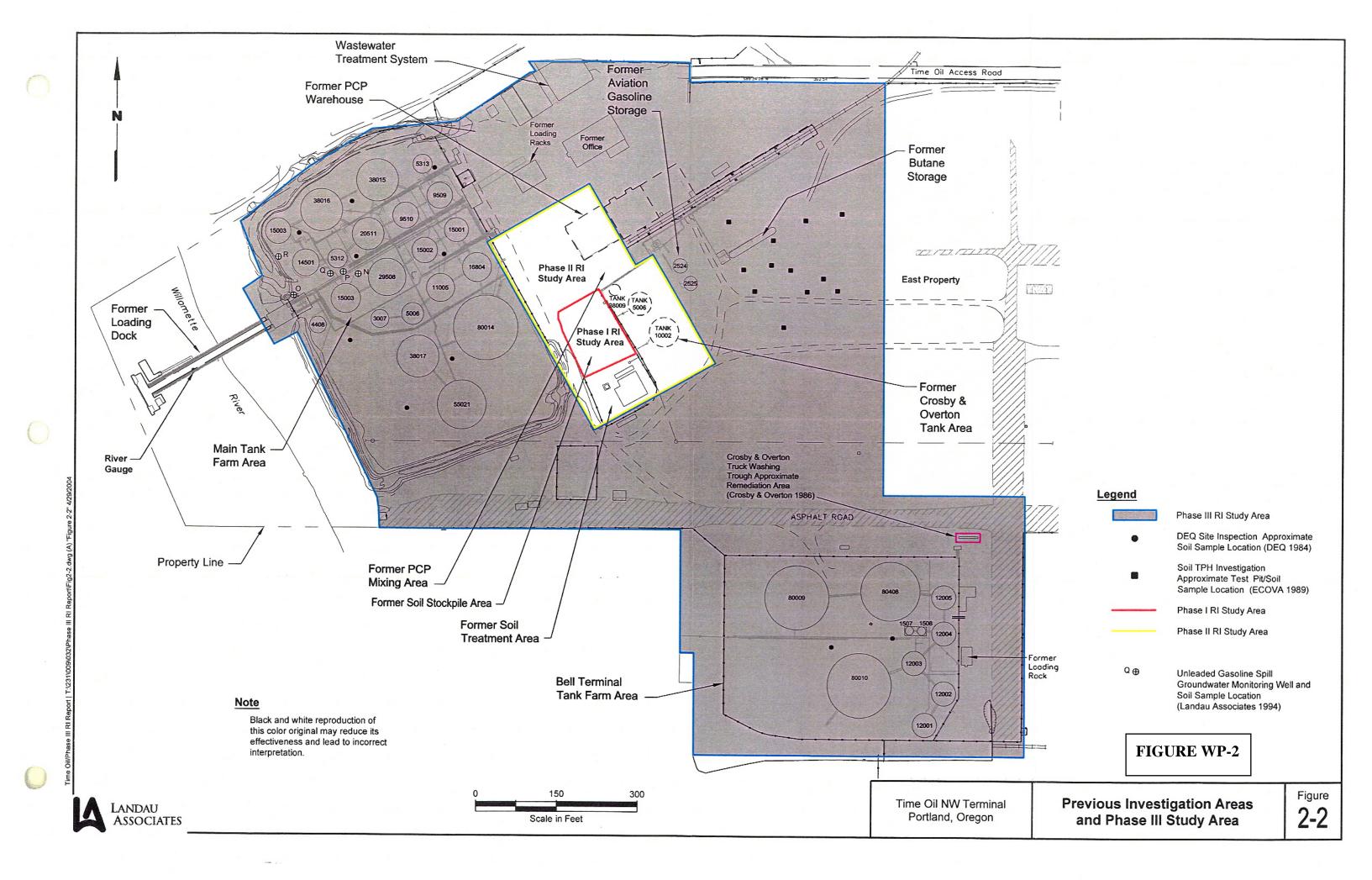
There is little, if any, doubt that Time Oil facilities are the primary cause of the PEO Site contamination. Therefore, DEQ and EPA should re-consider any prior acceptance of the completion of Time Oil's investigatory work at the Terminals in light of the facts testified to by Time Oil employees. Also the LWG should utilize the information set forth herein to reconsider its conceptual site model conclusions for the PEO Site. SIC stands ready to assist the LWG's consultant in reviewing its PEO Site conclusions and providing a more factually accurate PEO Site assessment. The DEQ should also require Time Oil to take over the PEO Site investigation and any needed cleanup. At a minimum, Time Oil should be named a responsible party at the PEO Site.

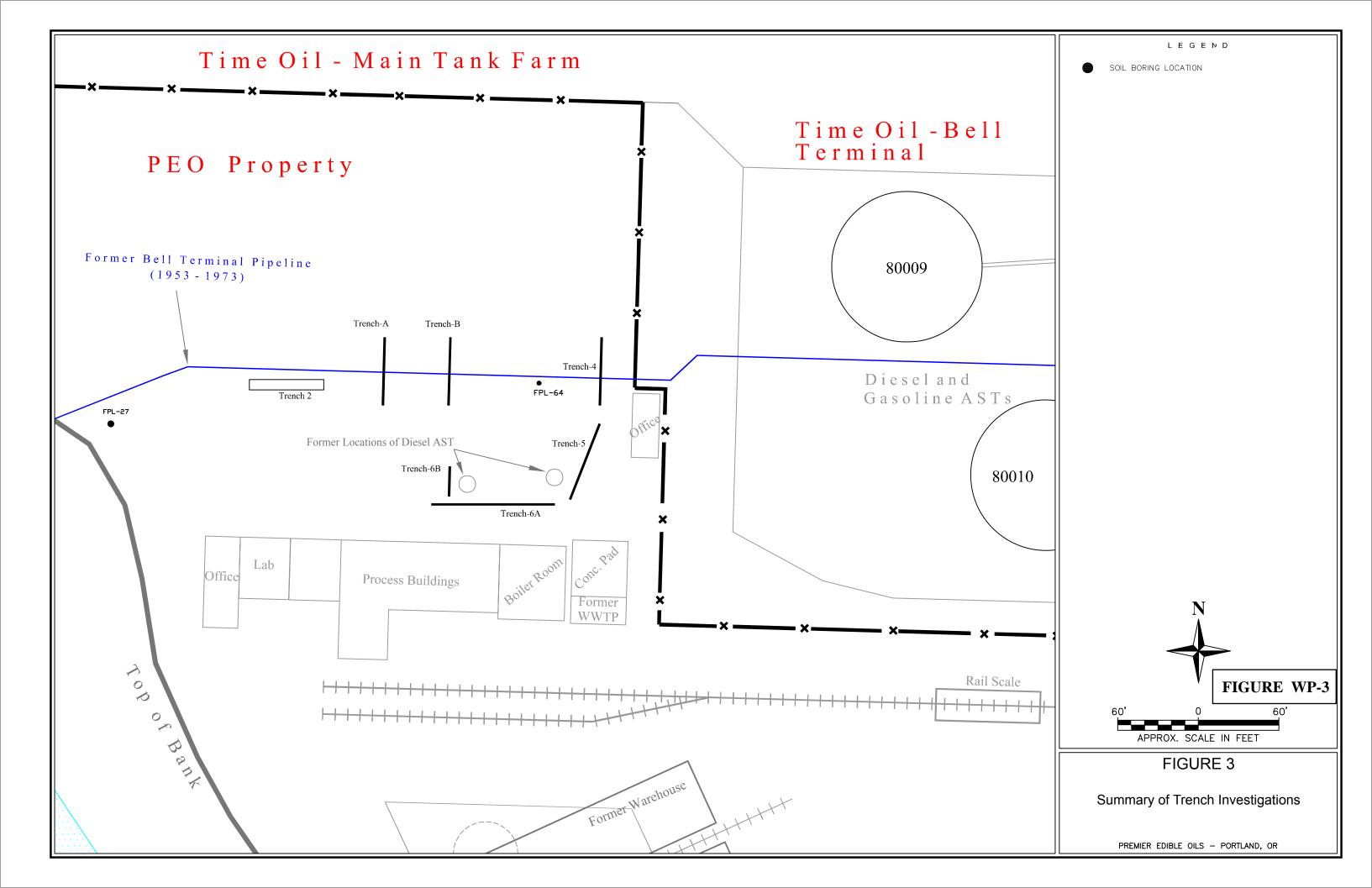
Further, Time Oil should be required to complete a systematic and technically sound investigation of soil and groundwater within the Bell Oil Terminal and Northwest Terminal facilities. Each sample location should include discrete (not composite) samples of shallow soil, intermediary soils, capillary fringe soils and groundwater, as well as sample analyses for the full suite of petroleum related analytes. The purpose of the investigation should be to determine the extent of the contamination caused by Time Oil's past petroleum tank bottom sludge disposal practices and past on-site releases.

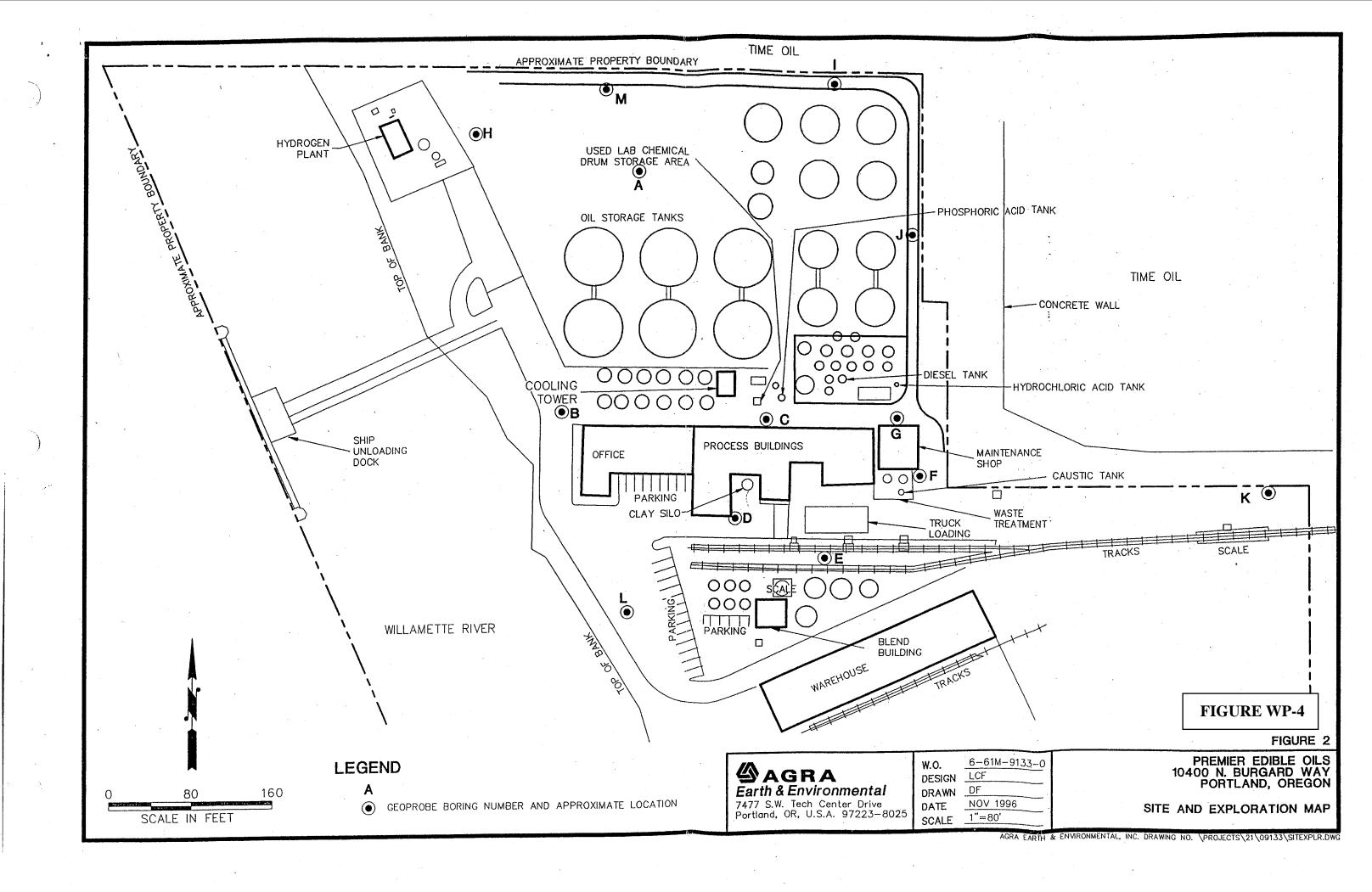
Lastly, Time Oil should also be required to review all of their corporate records, including past litigation files and depositions, for any records of past spills or releases at the oil terminals and certify, under penalty of law that they have fully reviewed and provided to the agencies copies of all relevant records.

# **FIGURES**

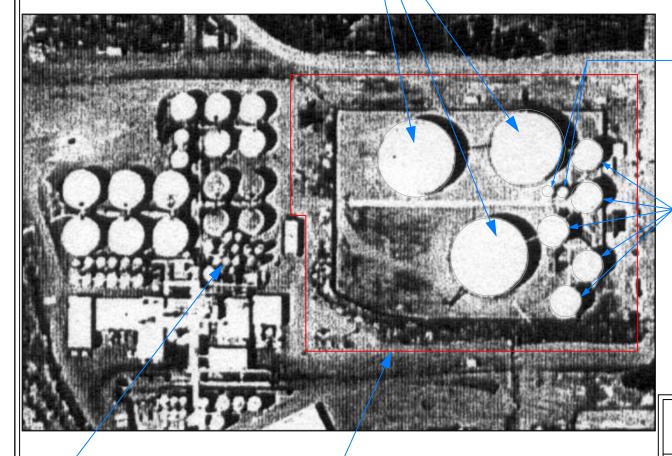








3 Large Tanks 3,360,000 gallons each



2 Small Tanks 63,000 gallons each

> 5 Medium Tanks 504,000 gallons each

> > FIGURE WP-5

**Gradient** CORPORATION

SUITE 803, 600 STEWART STREET • SEATTLE, WA 98101 • (206) 267-2921

FIGURE 2

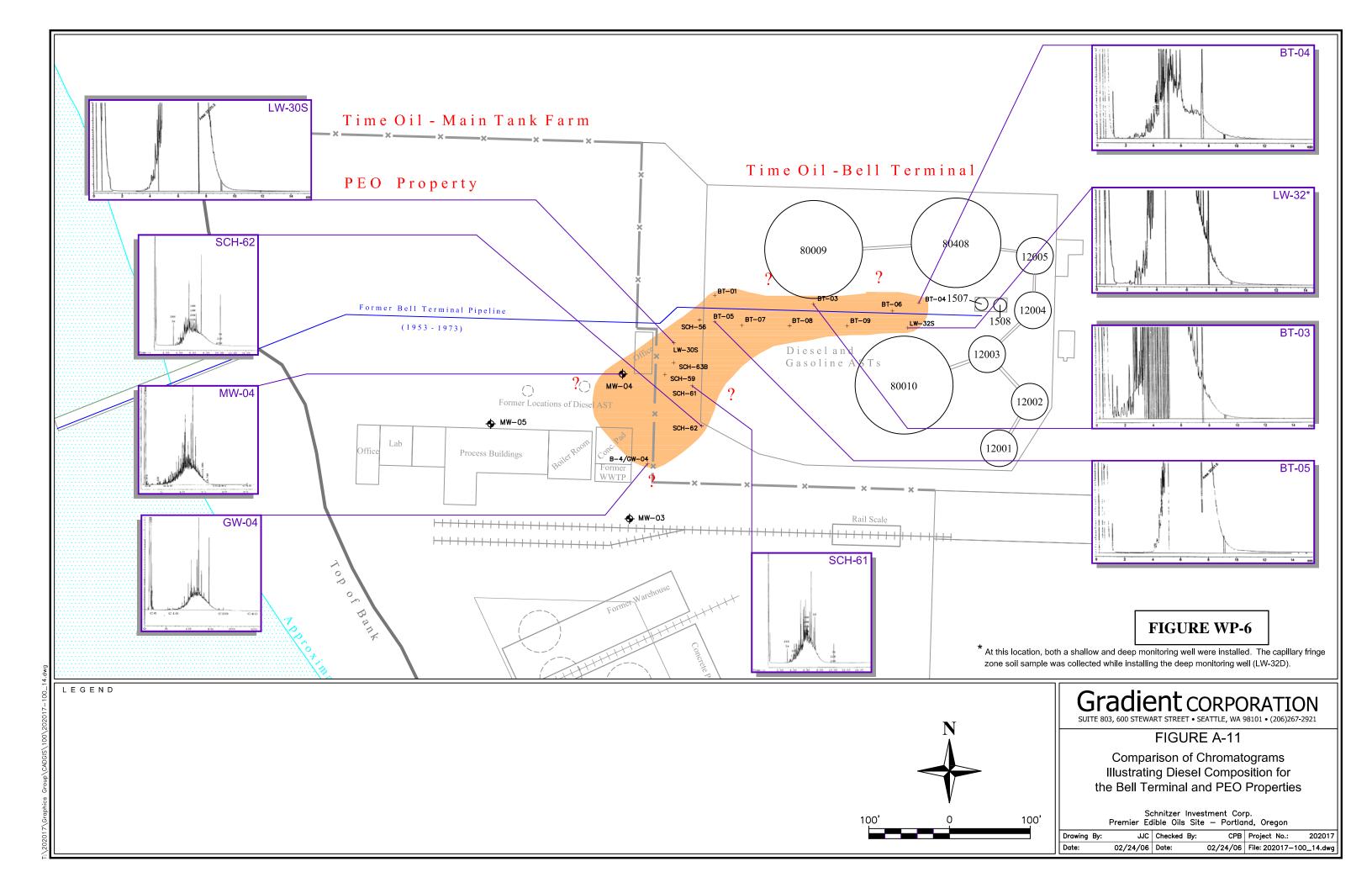
Relative Petroleum Product Storage Capacity at the PEO and Bell Terminal Sites

Schnitzer Investment Corp. Premier Edible Oils Site — Portland, Oregon

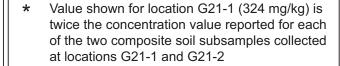
 Drawing By:
 JJC
 Checked By:
 CPB
 Project No.:
 202017

 Date:
 02/21/06
 Date:
 02/24/06
 File: 202017-100\_02.dwg

PEO Property 1 Diesel Tank - 10,000 gallons Bell Terminal Property
Total capacity - 12.7 million gallons
Assorted petroleum products







Locations with discrepancy between capillary fringe zone soil and groundwater data; consideration of integrated data suggests presence of elevated levels of petroleum hydrocarbons at this location

Sheen and strong petroleum odors reported in boring logs

Areas with evidence of the presence of elevated levels of gasoline-range petroleum hydrocarbons

U Non detect

Indicates area where uncertainty exists because of data limitations

#### Note:

Capillary fringe zone soil samples collected at locations BT-02, BT-03, BT-04, BT-07, BT-09, and BT-10 were not analyzed for quantitative TPH concentrations based on non-detect readings in qualitative screening analyses

# **FIGURE WP-7**

# **Gradient** CORPORATION

SUITE 803, 600 STEWART STREET • SEATTLE, WA 98101 • (206) 267-2920

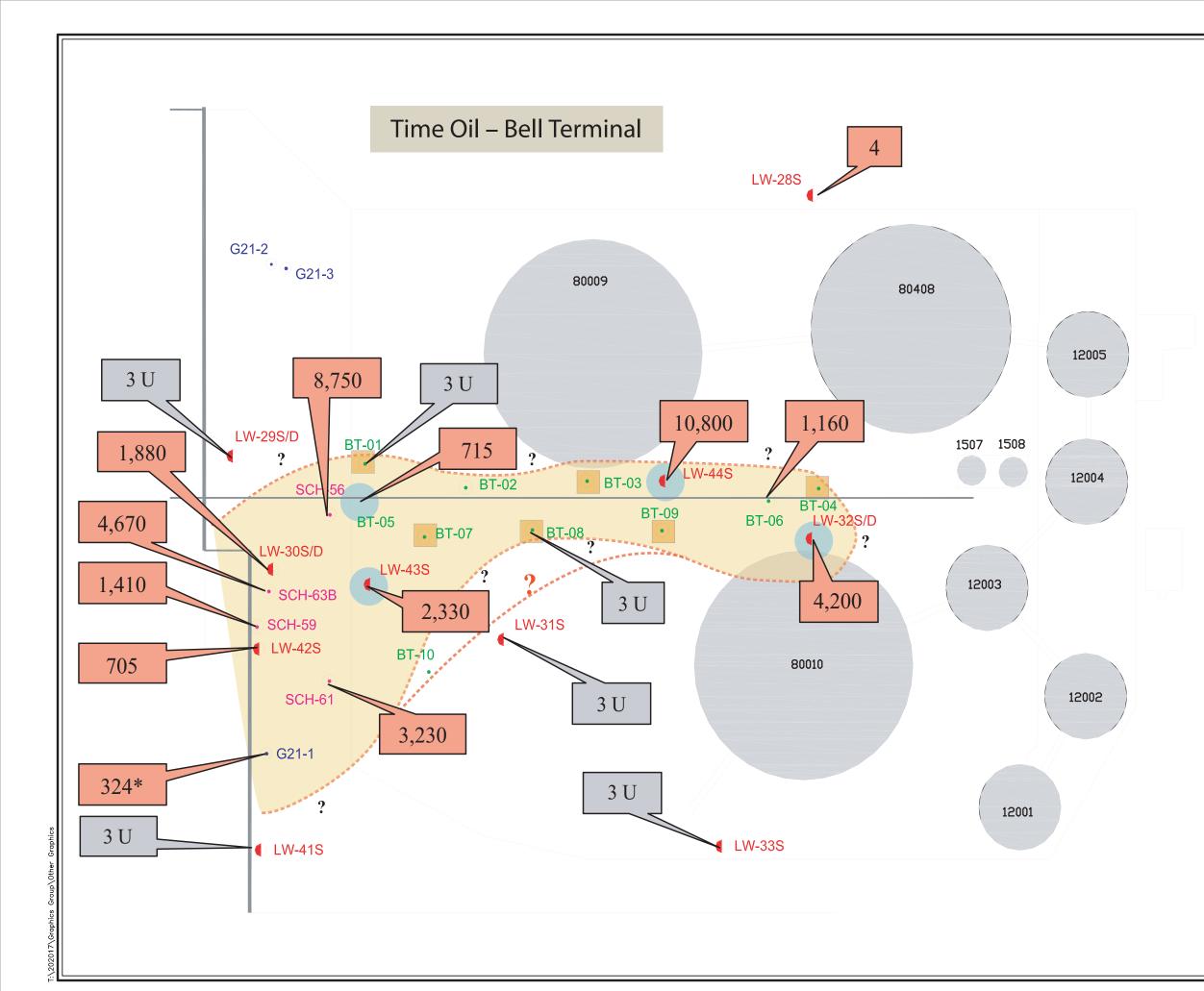
### FIGURE 3

Assessment of Capillary Fringe Zone Soil Results – TPH-Gasoline (mg/kg)

> Schnitzer Investment Corp. Premier Edible Oils Site — Portland, Oregon

 Drawing By:
 CAB
 Checked By:
 CPB
 Project
 No.:
 202017

 Date:
 02/23/06
 Date:
 02/23/06
 File:
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- Value shown for location G21-1 (2,240 mg/kg) is twice the concentration value reported for each of the two composite soil subsamples collected at locations G21-1 and G21-2
- \*\* Values shown for locations G22-3 (19,700 mg/kg) and G23-1 (52 mg/kg) are three times the concentration values reported for each of the three composite soil subsamples collected in Grids 22 and 23
  - Locations with discrepancy between capillary fringe zone soil and groundwater data; consideration of integrated data suggests presence of elevated levels of petroleum hydrocarbons at this location
  - Sheen and strong petroleum odors reported in boring logs
  - Areas with evidence of the presence of elevated levels of diesel-range petroleum hydrocarbons
- U Non detect
- Indicates area where uncertainty exists because of data limitations

#### Note:

Capillary fringe zone soil samples collected at locations BT-02, BT-03, BT-04, BT-07, BT-09, and BT-10 were not analyzed for quantitative TPH concentrations based on non-detect readings in qualitative screening analyses

# FIGURE WP-8

# **Gradient** CORPORATION

SUITE 803, 600 STEWART STREET • SEATTLE, WA 98101 • (206) 267-2920

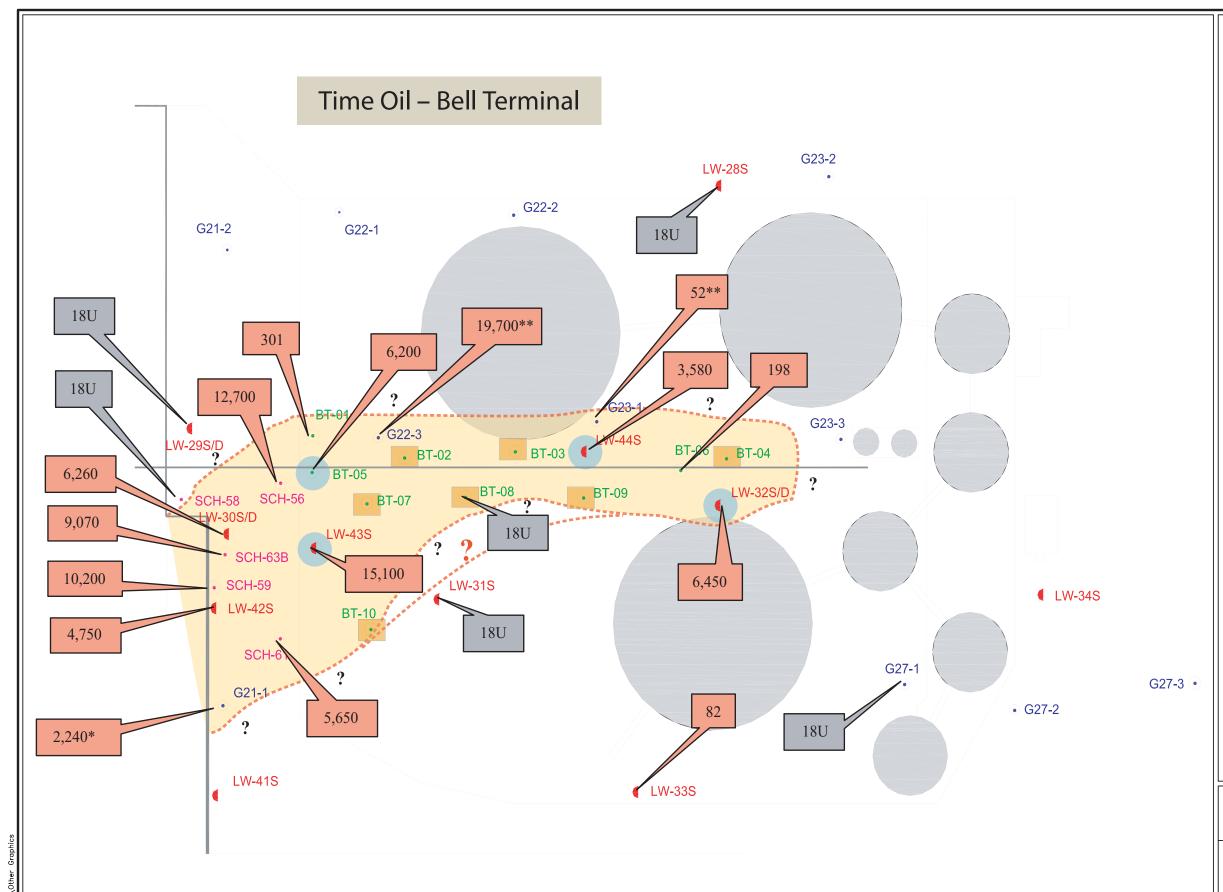
#### FIGURE 4

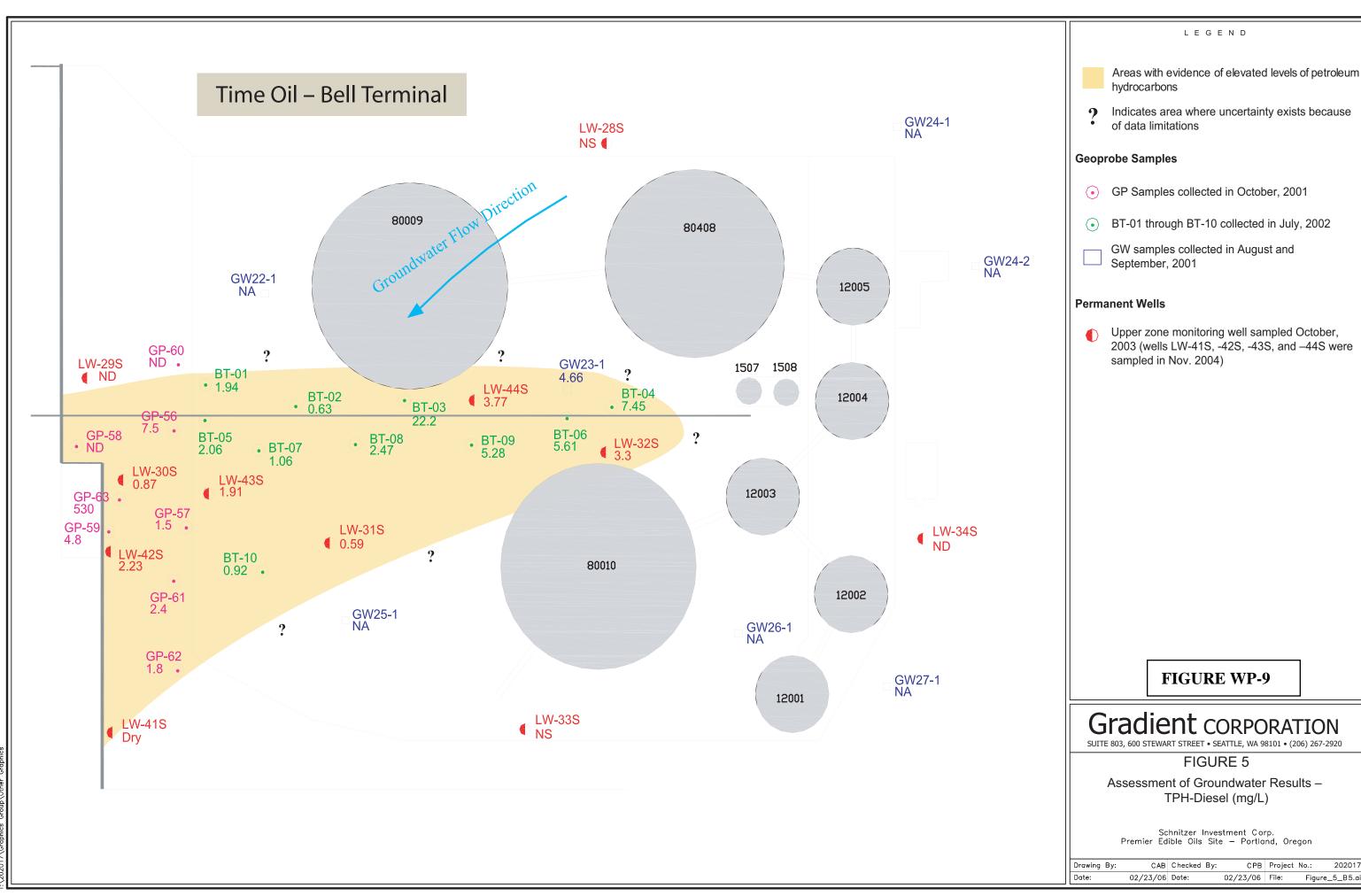
Assessment of Capillary Fringe Zone Soil Results – TPH-Diesel (mg/kg)

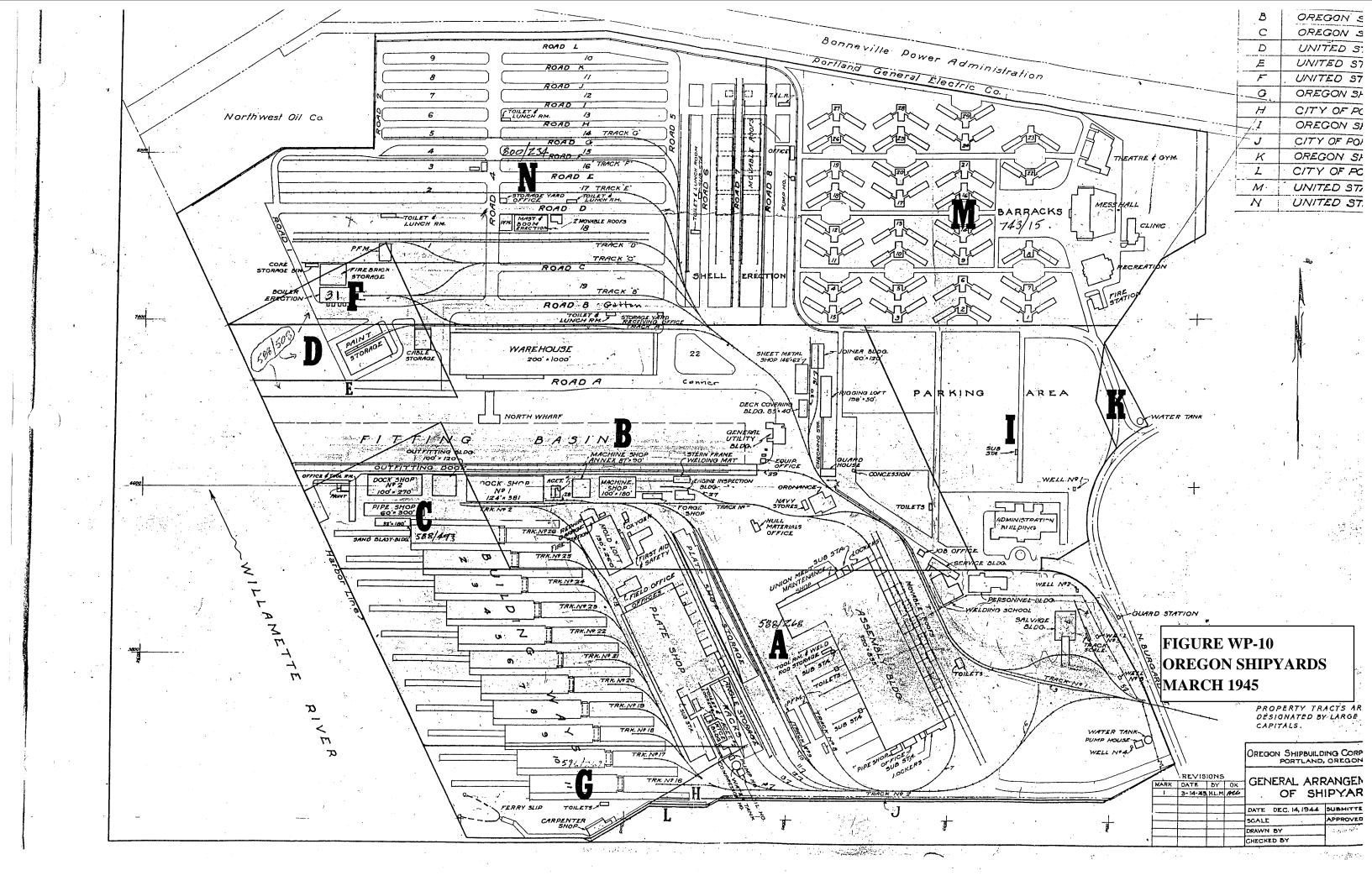
Schnitzer Investment Corp. Premier Edible Oils Site — Portland, Oregon

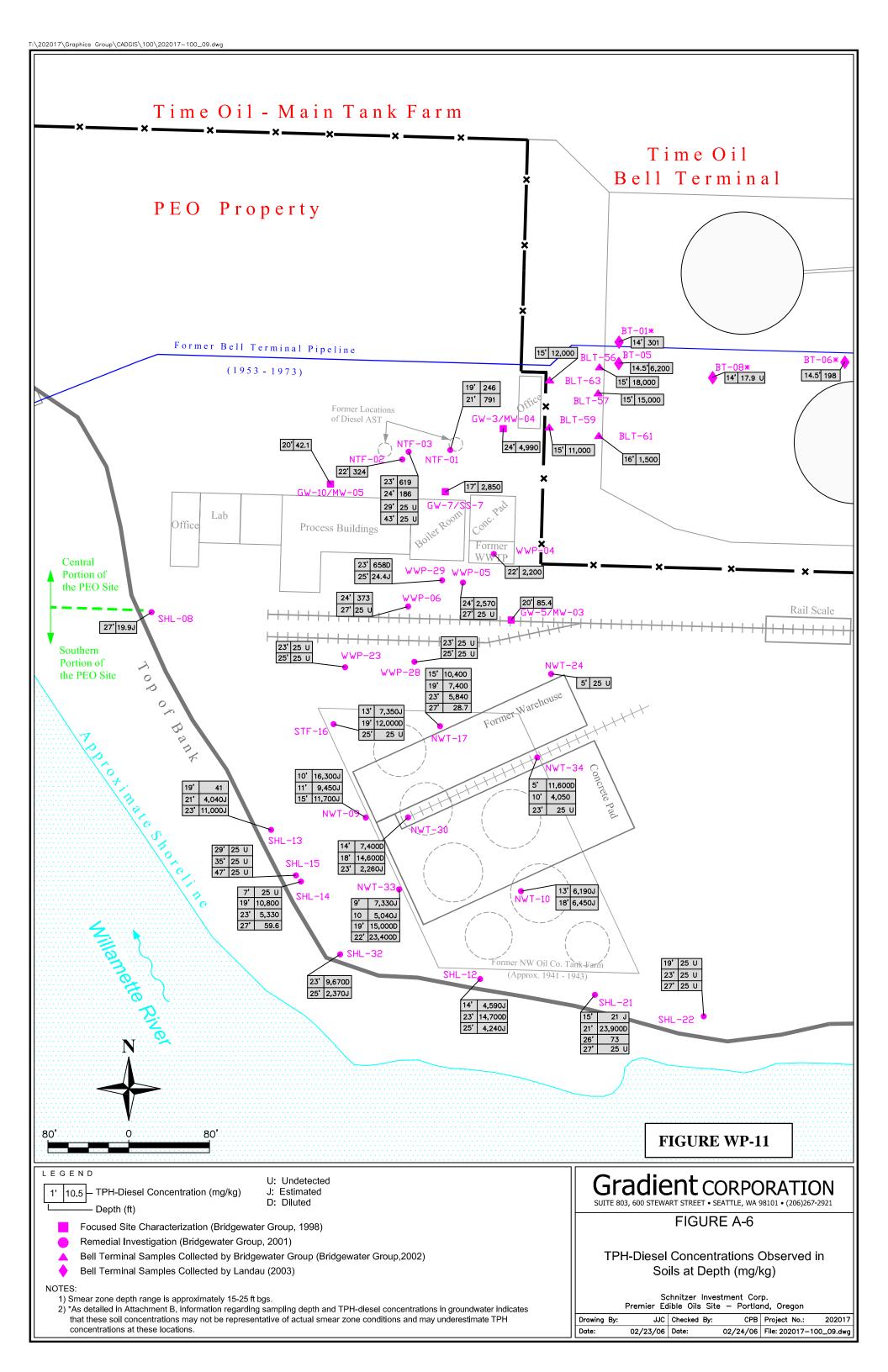
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 Checked By:
 CPB
 Project No.:
 202017

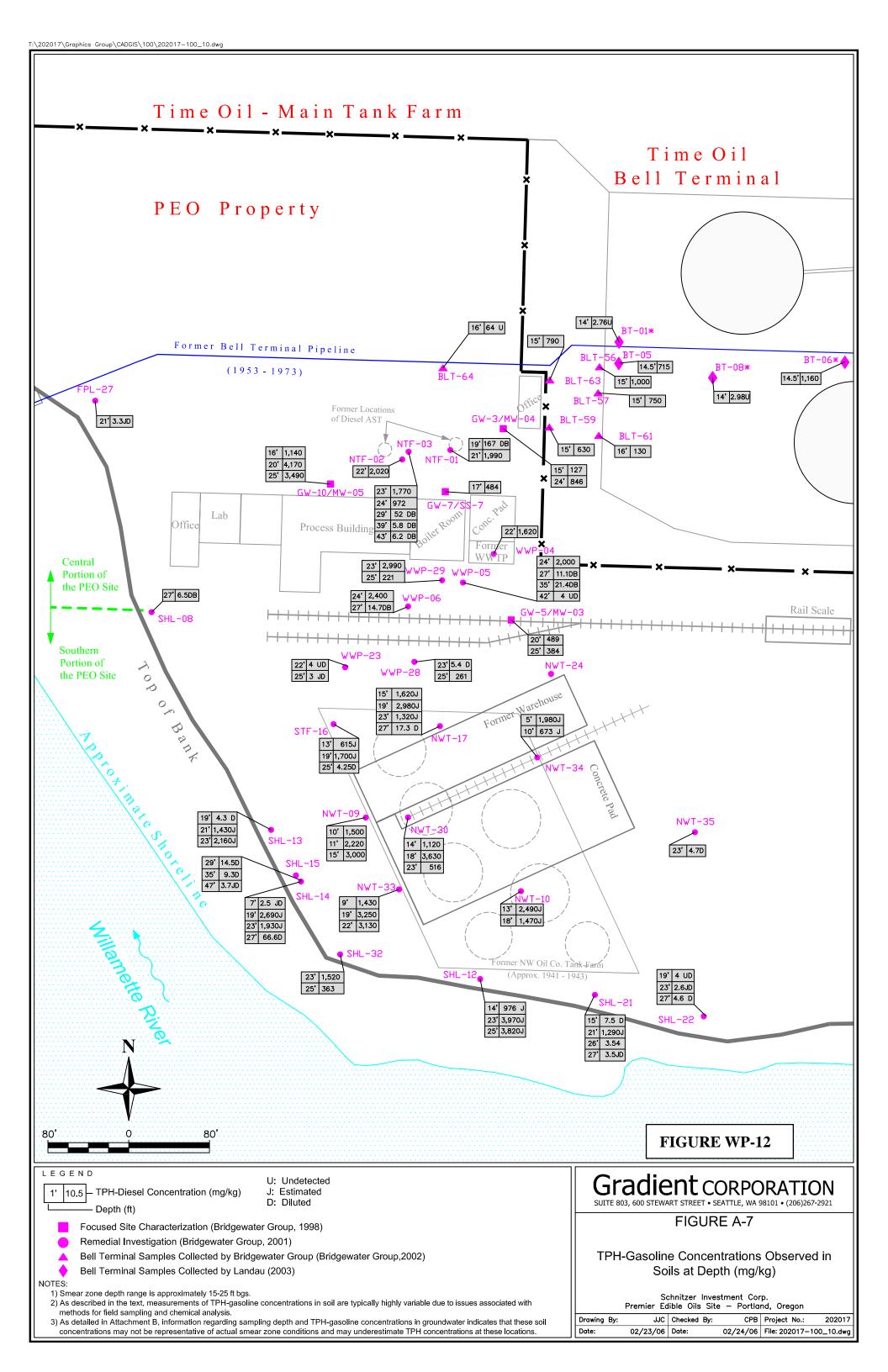
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## NOTES: Schnitzer Investment Corp. Premier Edible Oils Site — Portland, Oregon 1) Product thickness is apparent thickness measured in monitoring wells. 2) Detection frequency is based on 23 observations from June 6, 2001 to Drawing By: January 28, 2003 02/23/06 Date:

JJC Checked By:

CPB Project No.:

02/24/06 File: 202017-100\_12.dwg

202017

Drawing By:

Date:

JJC Checked By:

02/24/06 Date:

CPB Project No.:

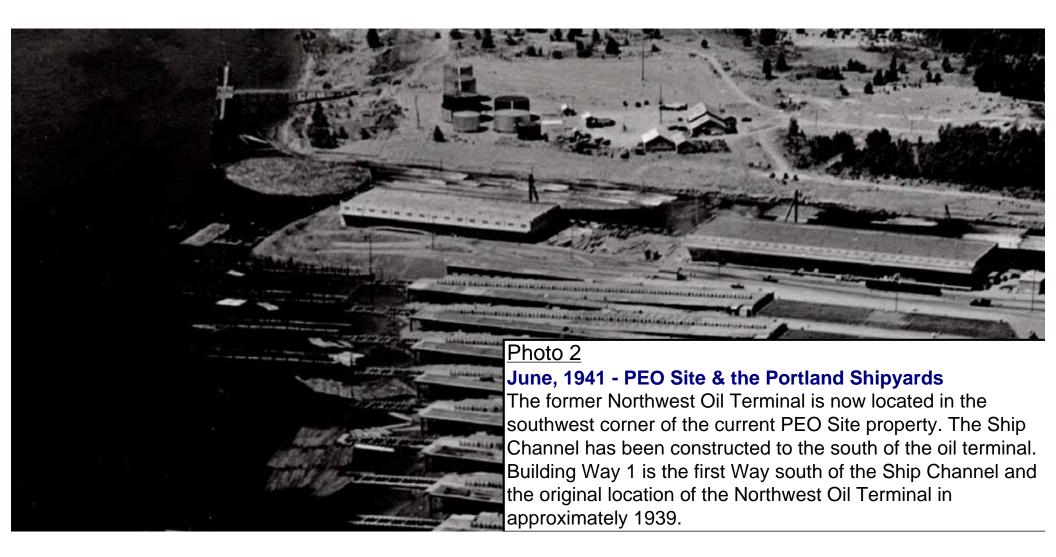
02/24/06 File: 202017-100\_13.dwg

2) BLT samples were collected in October, 2001.

3) BT samples were collected in July, 2002.

### **AERIAL PHOTOS**

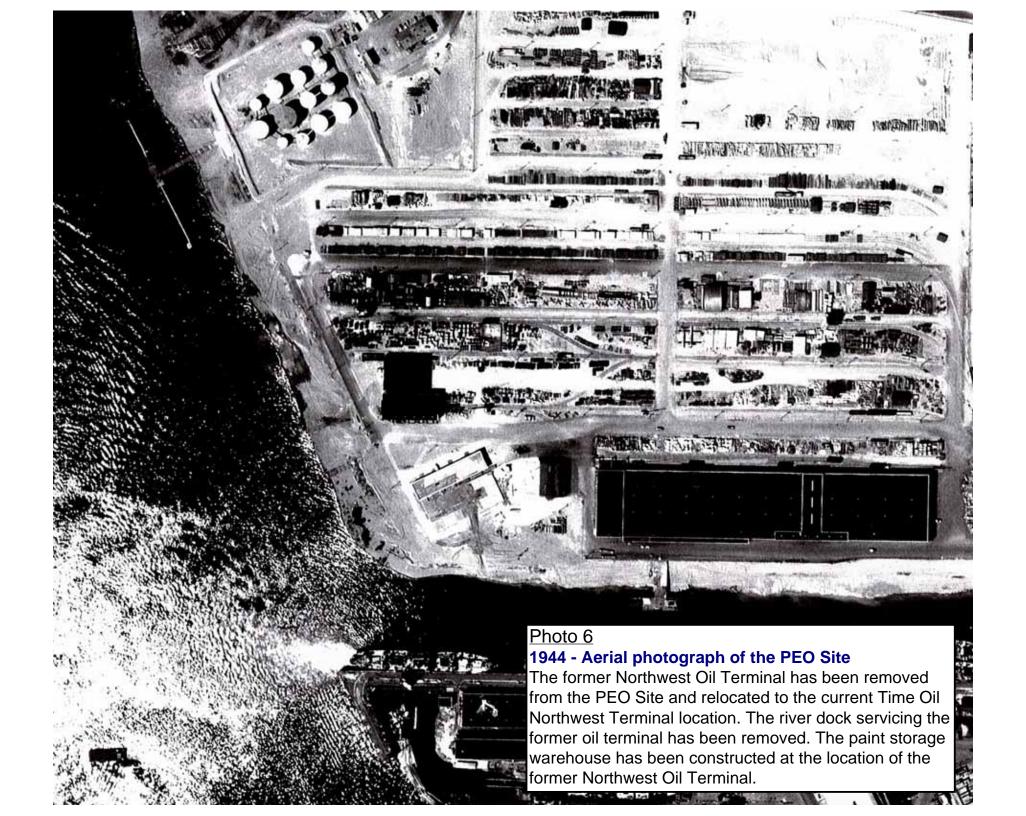




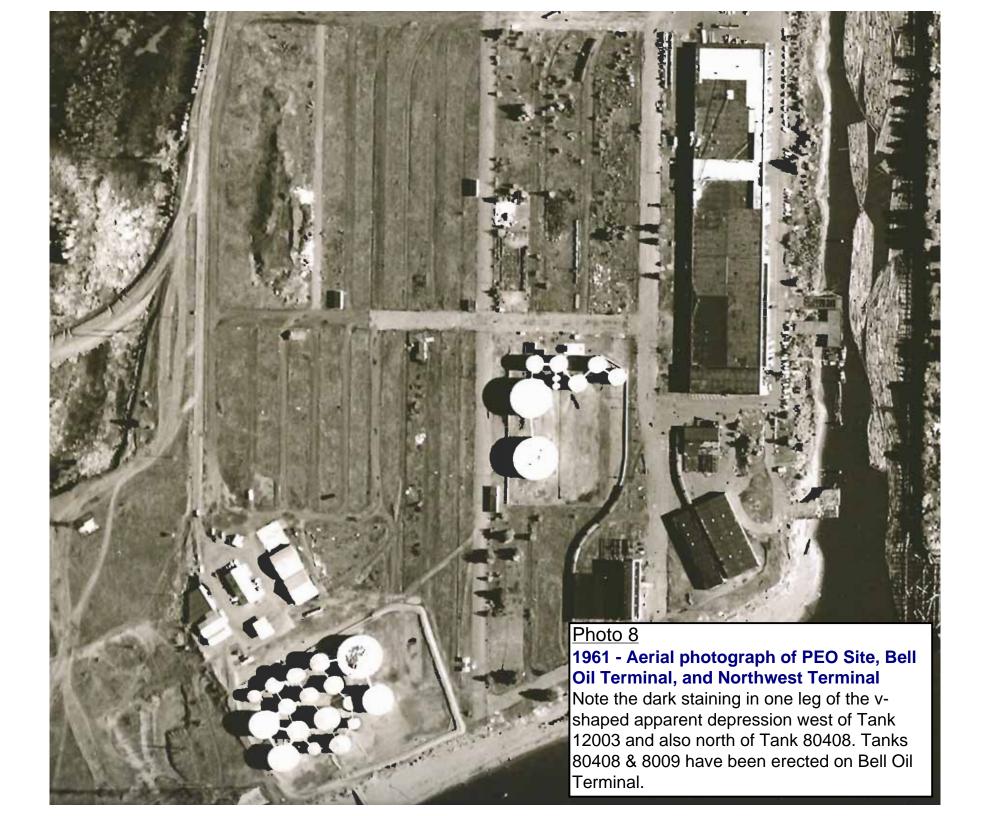


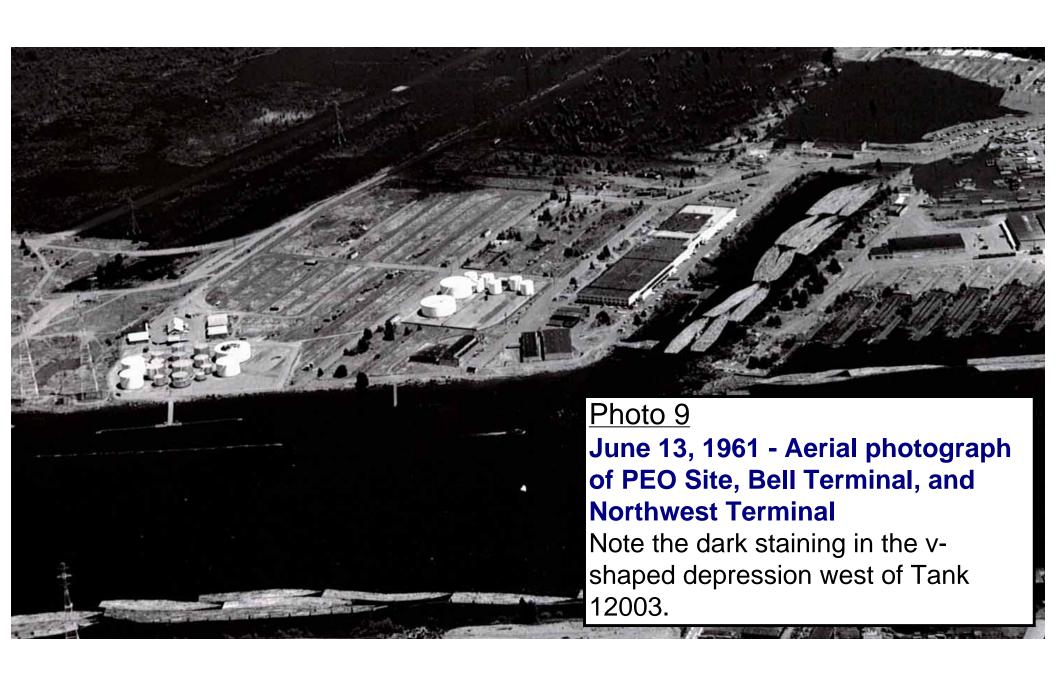




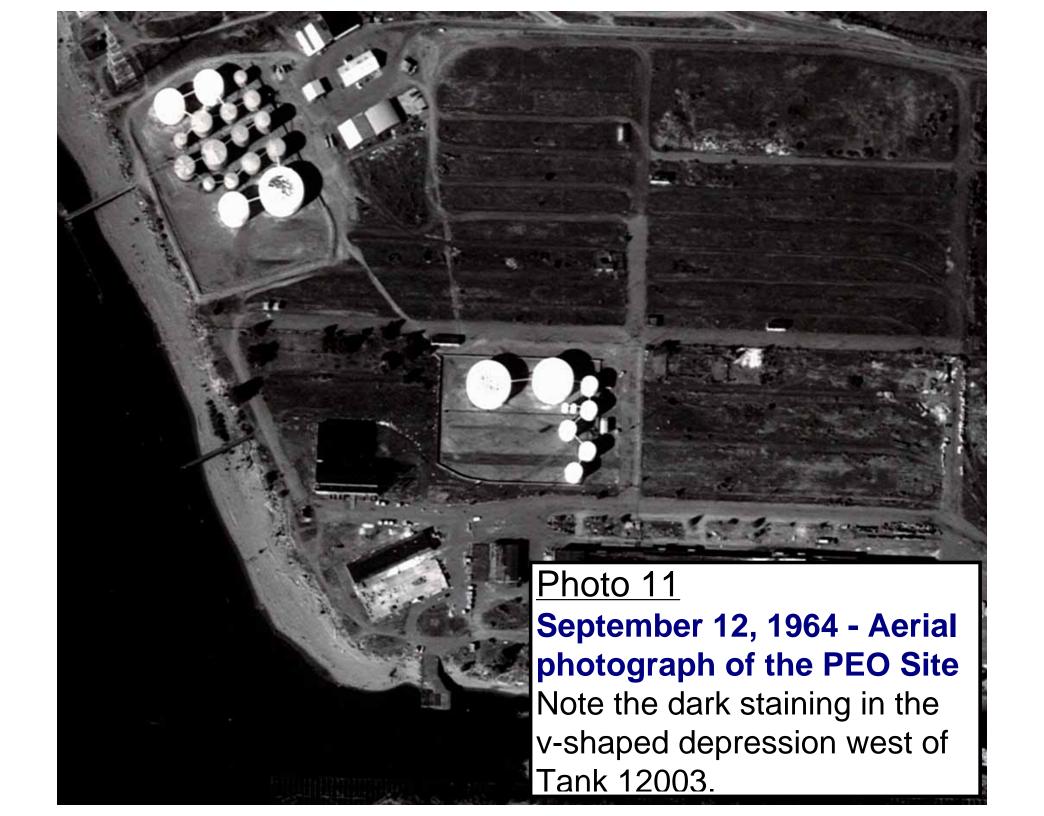










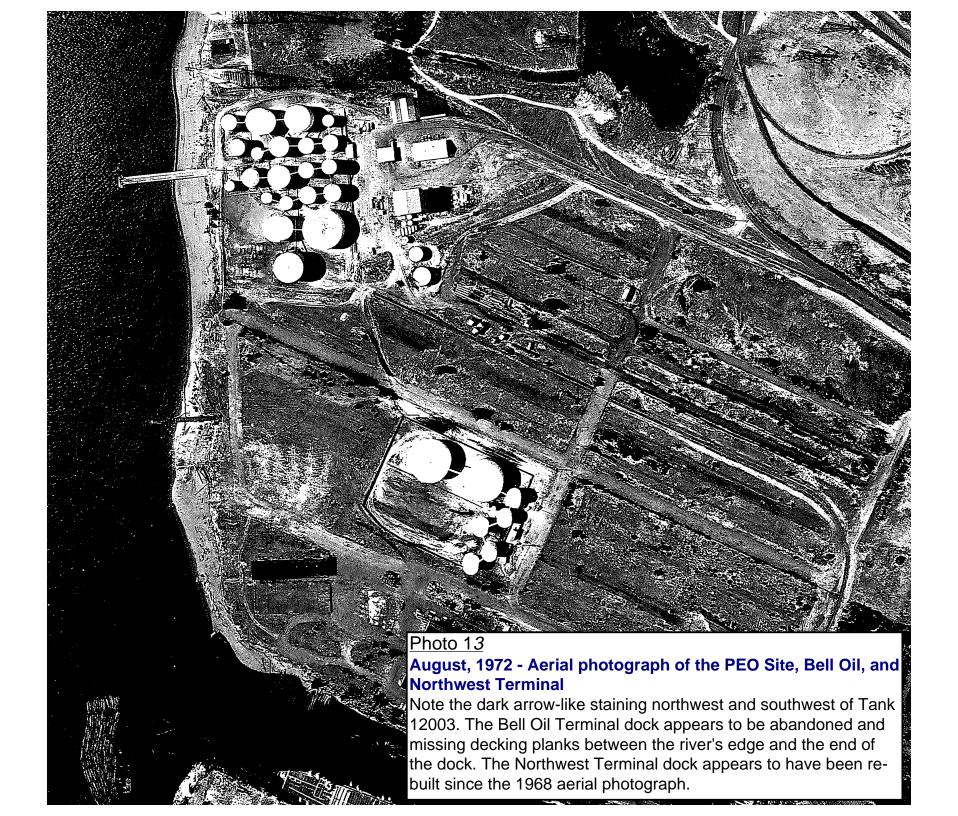


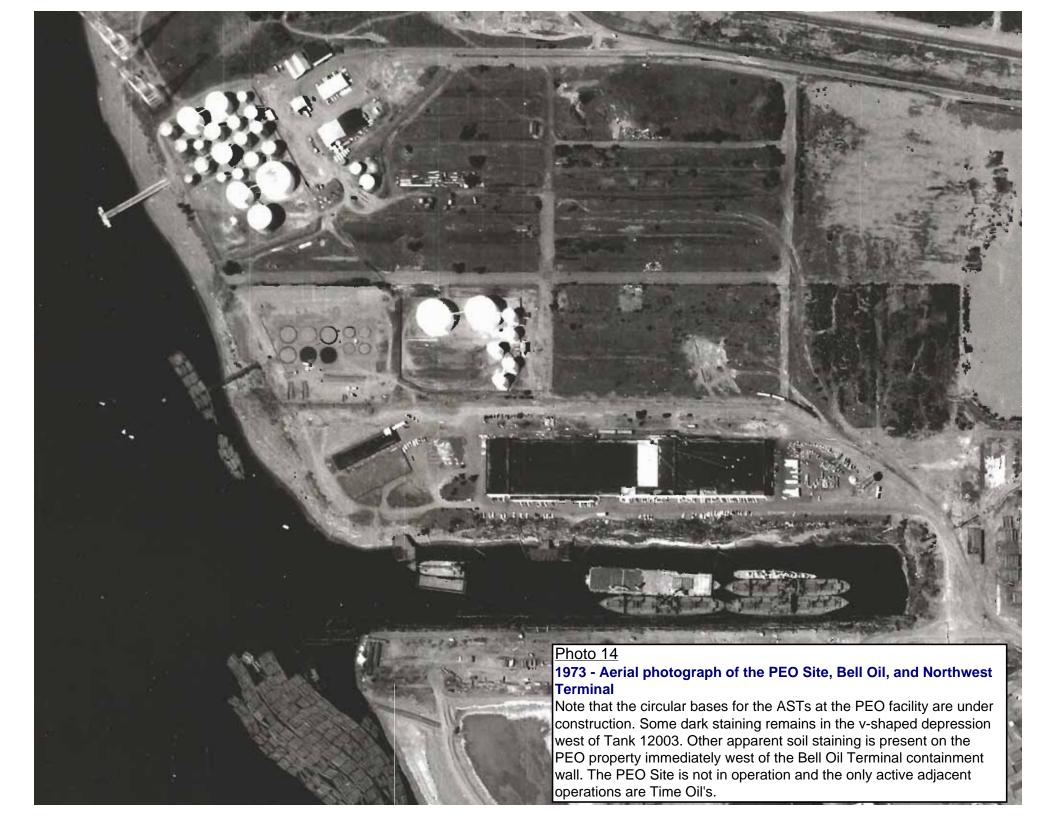


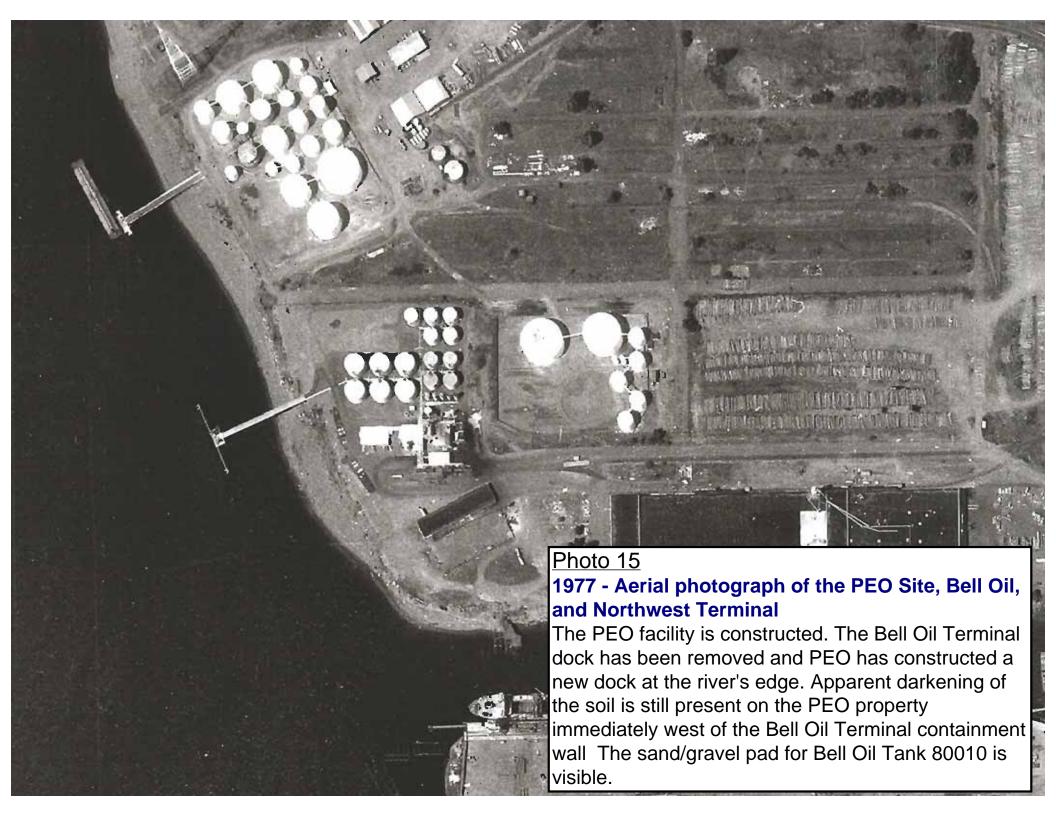
## Photo 12

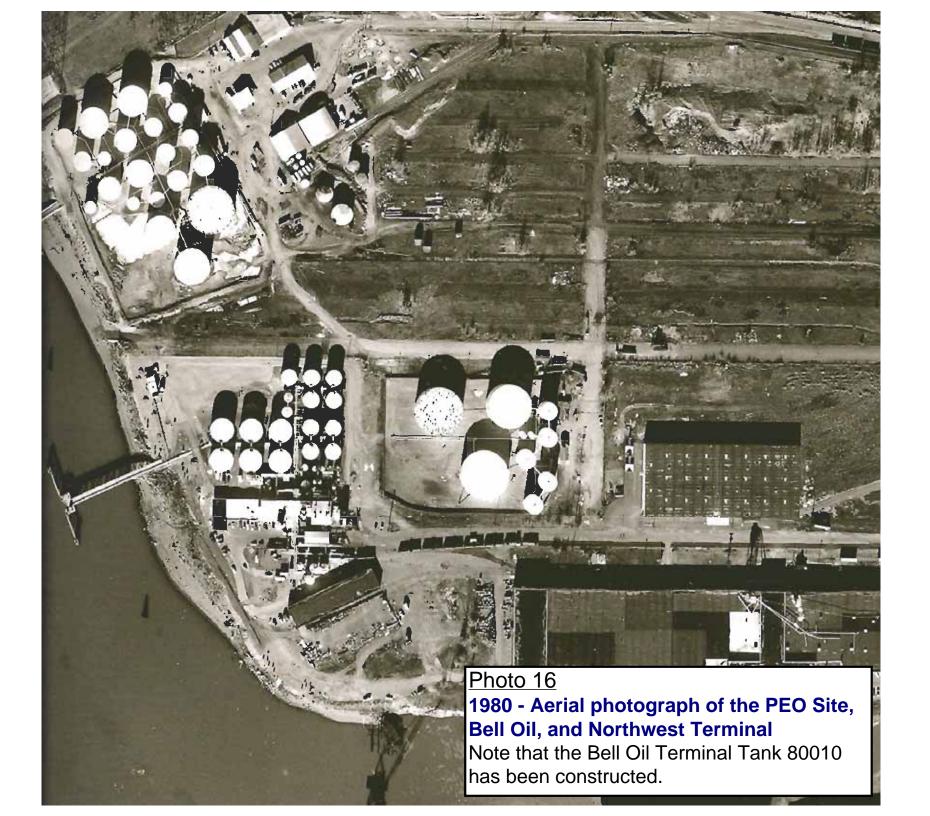
# August 29, 1968 - Aerial photograph of the PEO Site and Northwest Terminal

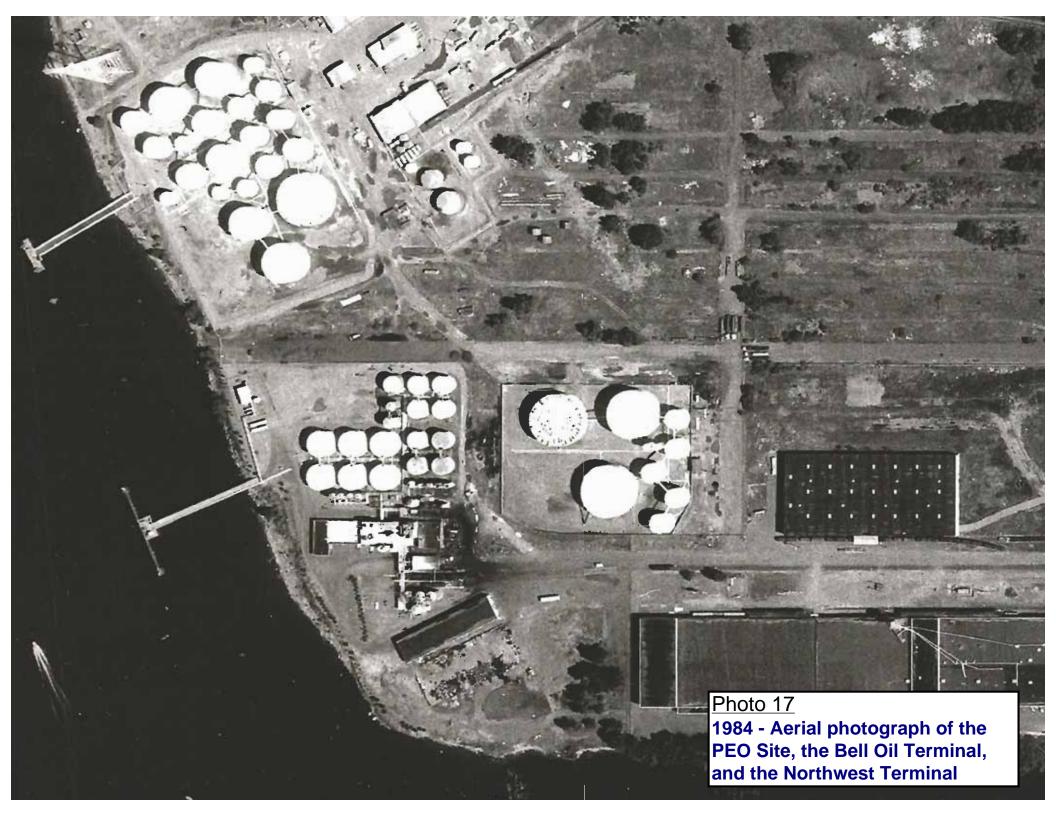
Note the dark staining in the v-shaped depression west of Tank 12003, as well as staining on the south side of Tank 12003. The Bell Oil Terminal dock appears operable.

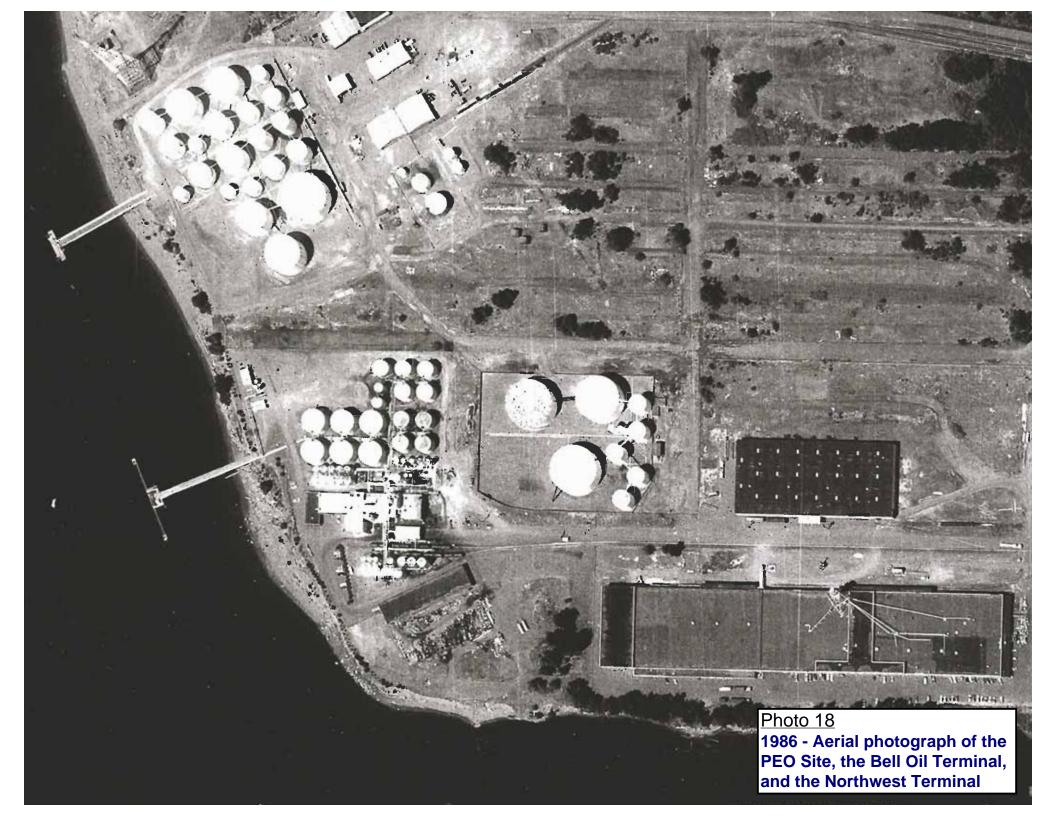


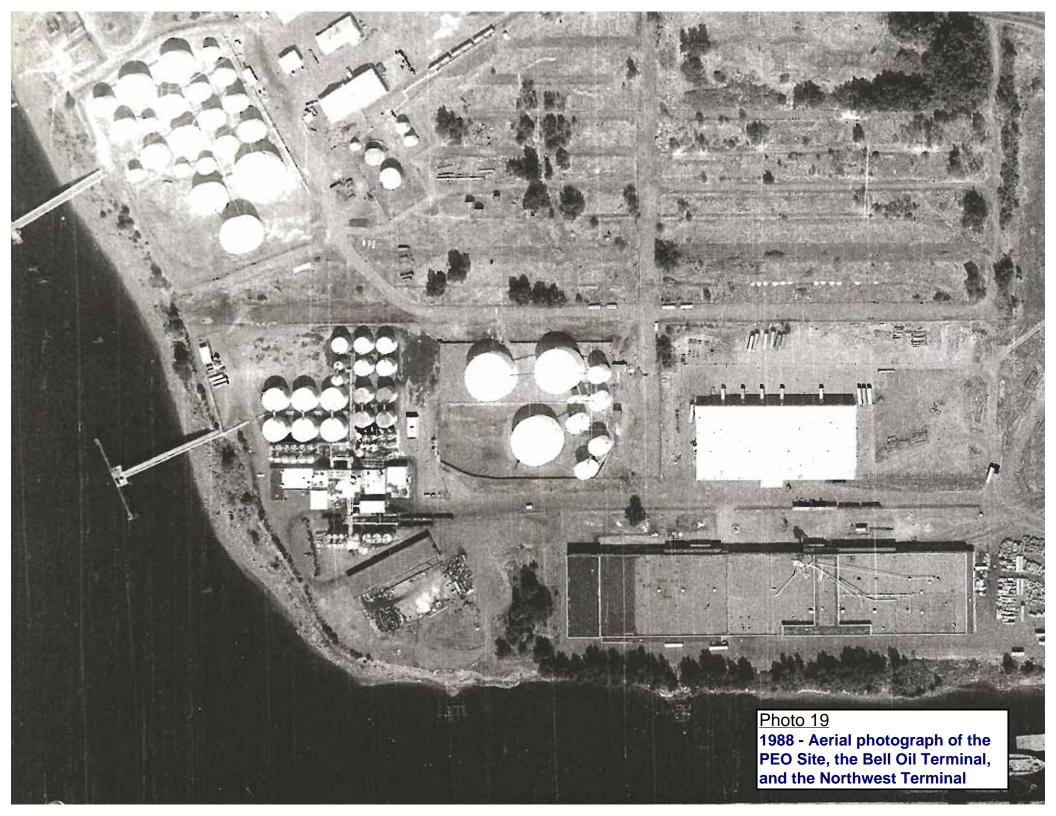


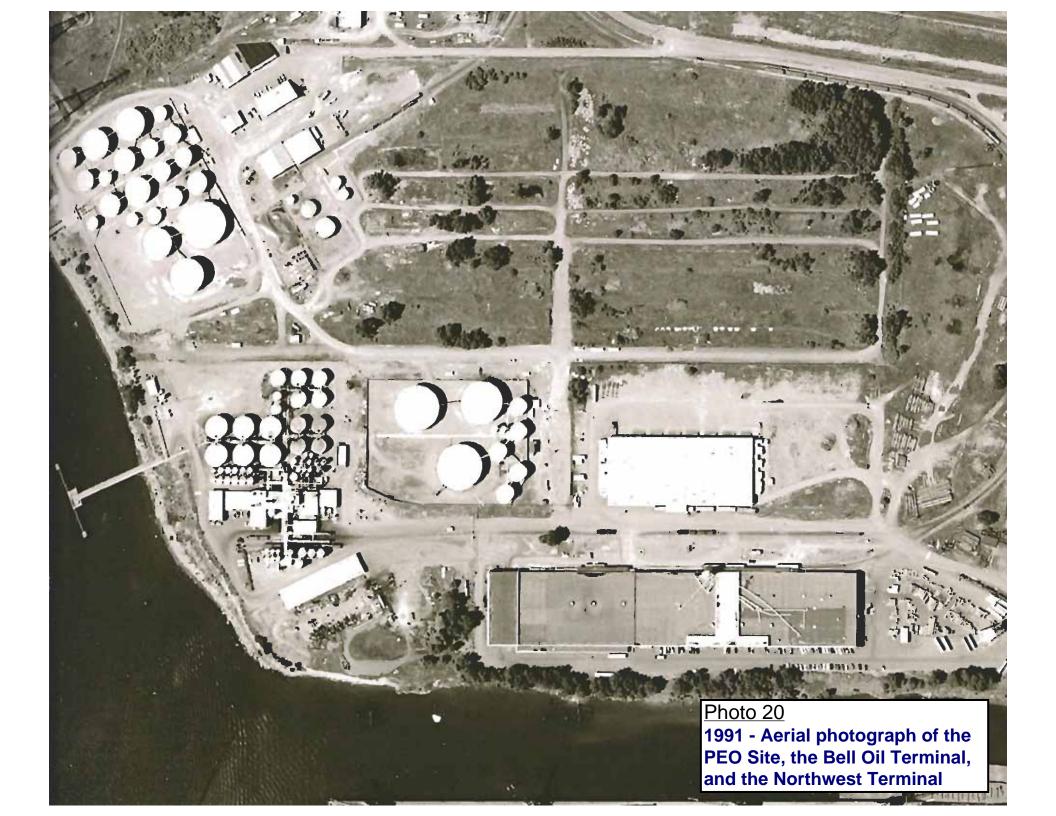


















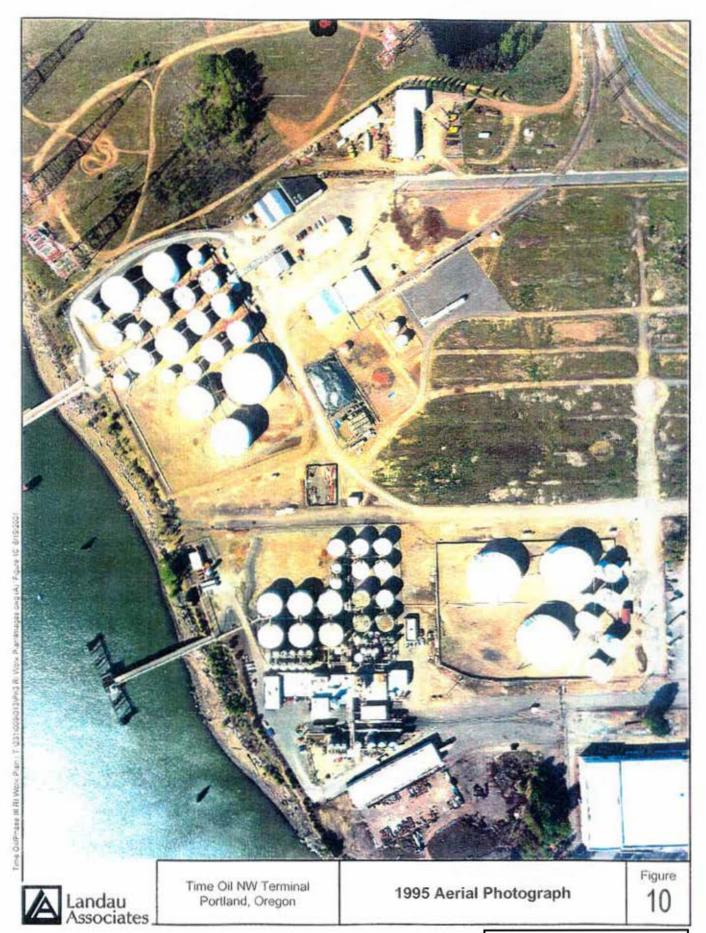


Photo 24 1995 - Aerial photograph of the PEO Site, the Bell Oil Terminal, and the Northwest Terminal

#### **APPENDIX A**

### COMPUTER DISCS OF

Transcripts of referenced Depositions and Affidavits in:

Bell Oil Terminal Co. vs. Schnitzer Investment Corp. and PALMCO Inc.: and
Time Oil vs. Underwriter At Lloyd's London

and

American Petroleum Institute's (API) Manuals on Cleaning Petroleum Storage Tanks